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The OIL AND GAS JOURNAL

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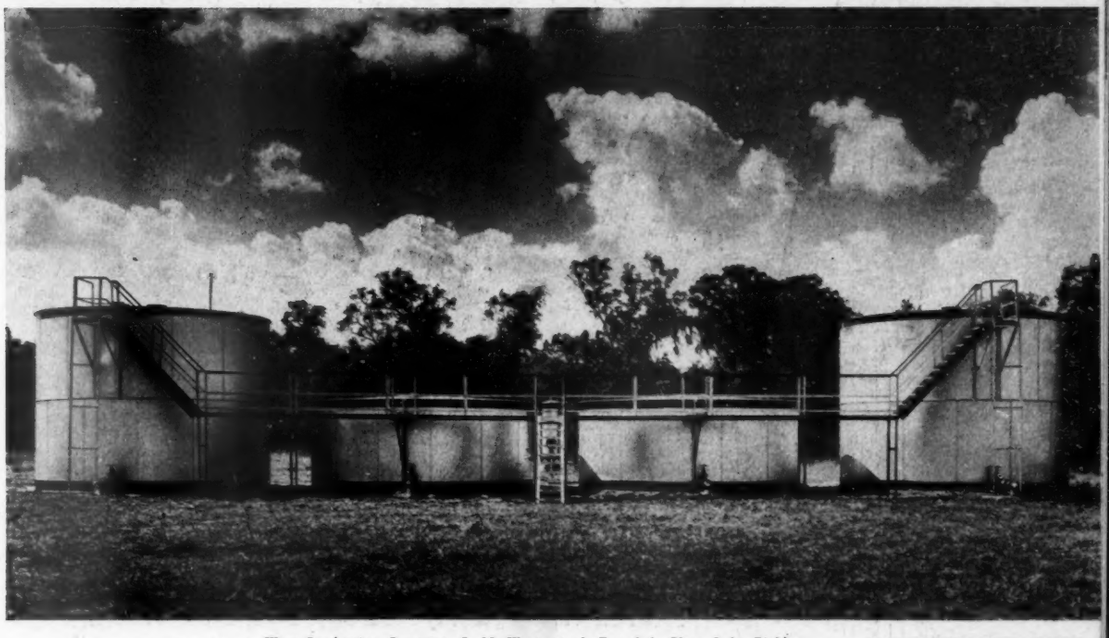

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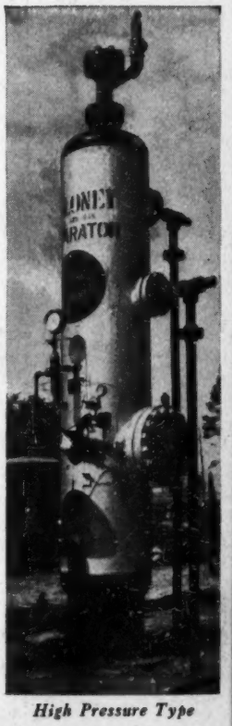

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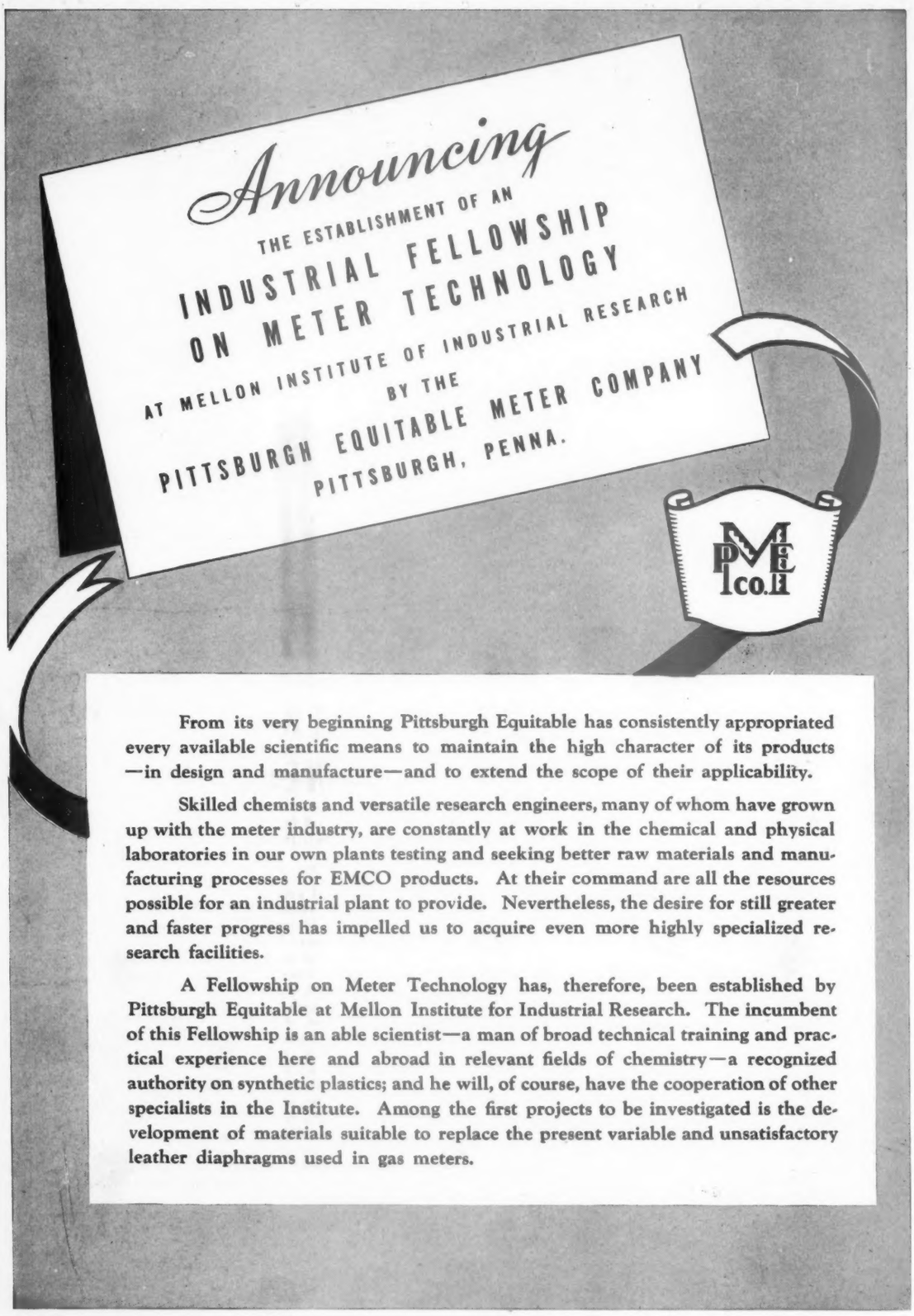

From its very beginning Pittsburgh Equitable has consistently appropriated every available scientific means to maintain the high character of its products —in design and manufacture—and to extend the scope of their applicability.

Skilled chemists and versatile research engineers, many of whom have grown up with the meter industry, are constantly at work in the chemical and physical laboratories in our own plants testing and seeking better raw materials and manufacturing processes for EMCO products. At their command are all the resources possible for an industrial plant to provide. Nevertheless, the desire for still greater and faster progress has impelled us to acquire even more highly specialized research facilities.

A Fellowship on Meter Technology has, therefore, been established by Pittsburgh Equitable at Mellon Institute for Industrial Research. The incumbent of this Fellowship is an able scientist—a man of broad technical training and practical experience here and abroad in relevant fields of chemistry—a recognized authority on synthetic plastics; and he will, of course, have the cooperation of other specialists in the Institute. Among the first projects to be investigated is the development of materials suitable to replace the present variable and unsatisfactory leather diaphragms used in gas meters.

The Oil and Gas Journal

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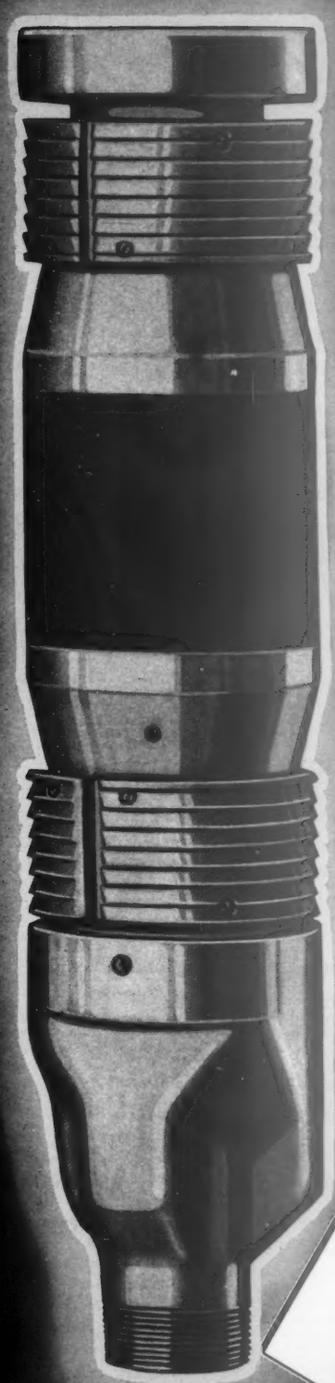

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THE ONE BRIGHT SPOT
IN A "DARK" SITUATION

When encroaching water threatens to impair or destroy your investment in an expensive oil well . . . *and all oil wells are expensive* . . . the BAKER CEMENT RETAINER is the one Bright Spot in an apparently "dark" situation. This remarkable tool is daily providing the successful and economical solution to many of the water problems that confront modern operators. Its accomplishments in solving these problems are a matter of field record . . . and they make mighty interesting reading.

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All of the above applications are illustrated and described in detail in the Baker Broadcast No. 17-A. This valuable 40-page treatise should be in your reference file... if it is not, a copy will be sent upon request.

BAKER OIL TOOLS, INC.
HUNTINGTON PARK, CALIFORNIA
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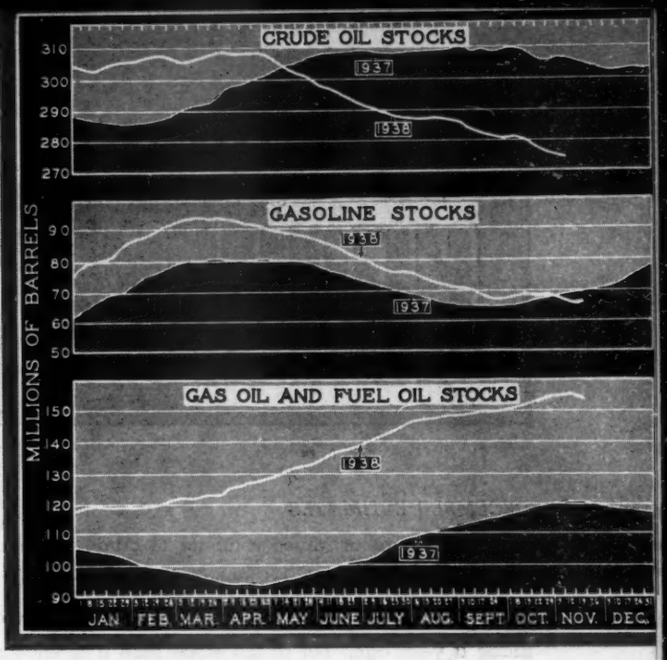
BAKER CEMENT RETAINER

Trends

Small Upward Trend in Crude Output Offset By Strong Refined Market



INCREASES in production in Texas, California and Kansas were mainly responsible for the 22,797-barrel increase in the daily average production of crude oil in the United States in the past week. The relatively small upward trend of production should be no cause for uneasiness, as the general situation has shown no unfavorable change in the past week.

CRUDE PRODUCTION *3,266,593 barrels daily average—up 22,797. One year ago 3,575,070 barrels.*

CRUDE STOCKS *273,394,000 barrels as of November 12—down 1,823,000. One year ago 305,608,000 barrels.*

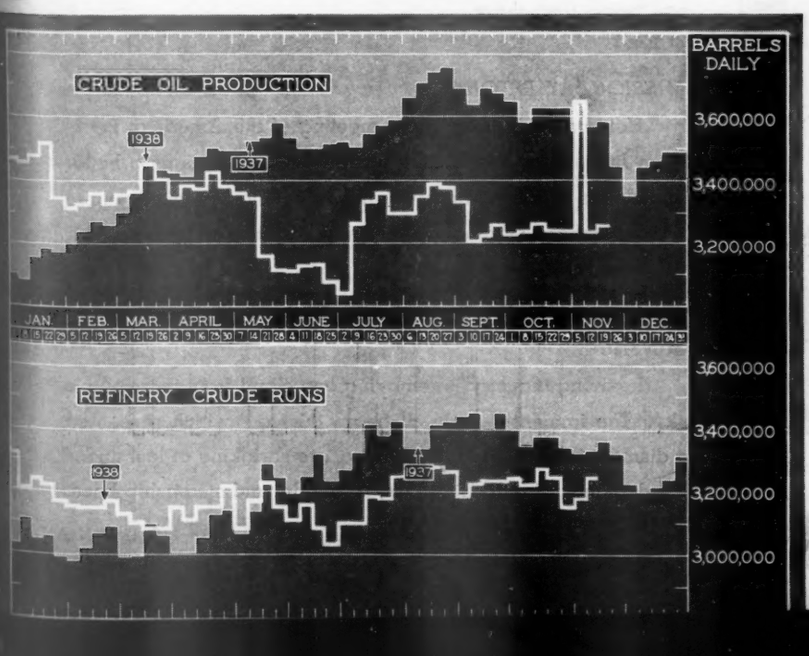
GASOLINE STOCKS *67,624,000 barrels as of November 19—up 73,000. One year ago 69,678,000 barrels.*

GAS AND FUEL OIL STOCKS *153,971,000 barrels as of November 19—down 695,000. One year ago 120,153,000 barrels.*

REFINERY RUNS *3,230,000 barrels daily week ending November 19—up 50,000. One year ago 3,365,000 barrels.*

Some oil is still going into commerce at below the posted market prices in Illinois and Michigan but these cuts come under the head of "local situations." Michigan producers are taking care of the situation by holding back the completion of wells. Only 10 new oil wells were brought into production in that state in the 7-day period, and there is no rush in developing the flush fields of Clare, Allegan and Van Buren counties.

The 500 East Texas wells that had been without pipe line connections have been given relief by oil purchasers, but it is believed that pipe line connections were made with the expectation that the Saturday and Sunday shutdowns in the state would continue through December. The Texas Railroad Commission received the December nominations of Texas oil buyers last week but may not announce the allowable production until next week. The general feeling is that the commission will continue the two-day shutdown. Only one protest was made against it at the meeting of commissioners, buyers and producers.



The United States Bureau of Mines estimate of crude demand in December is 3,305,800 barrels per day or 85,500 barrels below its November estimate.

Marked tightening of natural gasoline and a definitely improved outlook for heavy industrial fuels drew attention in the refined marketing division this week. Field stocks of the naturals have been under such heavy draft that they are less than half as large as they were in late September. Export and coastwise shipments, along with lively interior demand, have cleaned up overheavy inventories. Under the stimulus of renewed industrial activity consumption of heavy fuel oil has been climbing, with the result that little if any was obtainable

DAILY AVERAGE PRODUCTION FOR WEEK

	Nov. 19, 1938	Bur. Mines Nov. est. of demand	Nov. state allowables	Nov. 12, 1938
Oklahoma City	98,425	.....	.....	105,275
Fitts	38,750	.....	.....	37,075
Remainder of state	310,750	.....	.....	308,350
Total Oklahoma	447,925	515,000	428,000	450,700
East Texas	370,697	.....	.....	370,400
West Texas	203,850	.....	.....	201,449
North Central Texas	105,450	.....	.....	107,198
Texas Panhandle	60,200	.....	.....	58,850
East Central Texas	91,396	.....	.....	88,650
Gulf Coast Texas	333,697	.....	.....	331,750
Southwest Texas	98,000	.....	.....	96,897
Total Texas	1,263,290	1,371,000	1,279,653	1,255,194
North Louisiana	69,850	.....	.....	71,590
Gulf Coast Louisiana	188,098	.....	.....	189,150
Total Louisiana	257,948	256,300	235,000	260,740
California	675,250	616,700	610,000	667,100
Kansas	154,125	164,300	163,400	148,075
Arkansas	50,740	52,300	52,000	49,370
Eastern Fields	92,500	98,100	.....	93,000
Illinois	86,752	64,300	.....	86,604
Michigan	52,063	50,300	.....	51,173
New Mexico	108,220	111,000	105,400	109,760
Rocky Mountain area	77,780	92,000	.....	72,080
Total United States	3,266,593	3,391,300	.....	3,243,796

in the New York harbor district below the maximum of 95 cents a barrel. In western areas no important price changes were reported, but the market was stiffening. Gasoline consumption, helped this week by Thanksgiving holiday demands, was maintaining the phenomenally high rate which has marked it throughout the fall. The nation's stocks, now well below the level recorded in November last year, afford encouragement for, although refinery operations still are conducted at a loss in many instances, belief is growing that the gasoline market will enter the next season of heavy consumption free of the hugely excessive inventories which handicapped it last spring. The heating oils, laggard so far owing to mild weather, were fairly steady.

SPARKS FROM THE NEWS

DECEMBER ESTIMATES

The Bureau of Mines estimate of crude oil requirements for December is 4 per cent under that for December, 1937, because it is hoped to avoid the large additions to gasoline stocks made a year ago. But at the same time it is encouraging to note that the estimated demand for crude is 2 per cent above that of December, 1937.

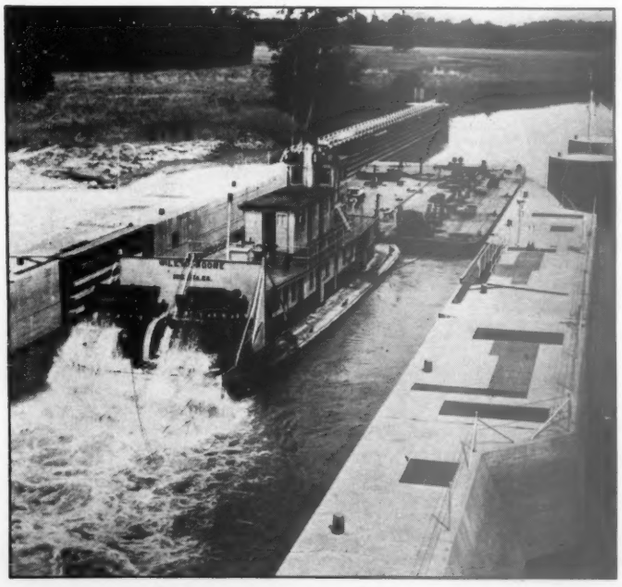
GLYCERIN FROM OIL

The director of a large research laboratory announces his company is ready to manufacture a superior grade of glycerin from petroleum at a cost below the present market. This has unusual significance. Glycerin is a base for many common articles of trade and, if the need should arise, it could be made into nitro-glycerin.

CAUSE FOR THANKFULNESS

Economist Van Covern of the American Petroleum Institute estimates that gasoline consumption will be 4 per cent larger next year and furnace oil demand this winter 15 per cent greater than last winter.

GASOLINE FOR GEORGIA



Towboat of Pure Transportation Co. fleet sweeping two barges loaded with gasoline through Savannah locks

LOOKING AHEAD

Companies holding large crude oil reserves which contain abnormally high percentages of sulfur are investigating every means of cracking the oil to rid it of its objectionable properties.

EVIDENCE

Illinois may or may not enact a conservation law, but in the meantime some of the producers there are paying the penalty of overproduction in facing competition below the posted prices.

POSTPONEMENT

The Temporary National Economic (Monopoly) Committee is not to start right in on the oil industry. It is to consider fundamental principles first. In which case the oil probe may be delayed indefinitely.

SALES JOB

Most people acquainted with the oil business feel the industry has done a fine job of selling its products to the public but a poor job of selling itself.

CROWDING DOCKET

The Federal Power Commission is beginning to realize that taking over the natural gas industry's problems is going to be quite some job. Petitions, complaints, answers and demurrers are being filed daily.

MISSIONARY EFFORT

Holding the 1939 midyear meeting of the American Petroleum Institute in New Orleans will give Louisianians a better knowledge of the oil industry and its problems which require the active cooperation of all oil-producing states for their solution.

SUNSHINE

Reviving industry is removing one cloud from petroleum's sky. The immense stocks of heavy fuel oil, which presented a dismal problem a few weeks ago, are shrinking at last under the demands of mills, factories, railroads, and steamship lines.

Reserves in 1938 Near 1937 Total

To satisfy the often asked question "Are we finding as much oil this year as we are using?" this preliminary report has been prepared. All estimates are subject to revision in the Annual Reserve Estimates to be prepared and published in an early January issue of The Oil and Gas Journal.

By L. G. E. BIGNELL

Less oil will be placed in reserve this year than last unless some relatively large fields are discovered during December. Lower rate of production, less drilling, and increased withdrawals from storage coupled with the fact that no single field of outstanding importance or size has been discovered this year accounts for this condition.

A preliminary survey of new discoveries for first 10 months of 1938 indicates that about 571,000,000 bbls. of new oil has been listed in underground reserve during that period. This is comparable with 584,451,398 bbls. of new oil found during all of 1937 and indicates the industry is still finding crude faster than it is being used. These figures are all preliminary and subject to revision later.

An overall survey of what the industry has been doing during the past four years is shown in the accompanying table.

Storage Above Ground Reduced

This indicates that the rate of finding new oil and its production is about the same as during 1937. At the first of this year there was 306,084,000 bbls. of crude oil in storage aboveground and at the end of October this year only 275,824,000 bbls., or a reduction of 30,260,000 bbls.

While Illinois basin region has attracted the most attention during the year because of the increased activity there it is found that more oil has been developed in West Texas through the extension of several fields opened last year. The largest area has been opened by connection of the Wasson-Denver fields and adding about 30,000 acres of proven territory to those already large fields. This accounts for 300,000,000 bbls. of the 710,745,000 bbls. found in eastern, northern, and western Texas during the first 10 months of 1938.

The K.M.A. field in North Texas has also been extended by about 20,000 acres and 160,000,000 bbls. additional reserves. In the review of Texas it is found that 62 new pools have been found this year with 31 of them in Southwest Texas. There were also 13 extensions made to pools previously opened and this work accounts for the 985,000,000 bbls. of new oil put into reserve in that state.

The Louisiana Gulf Coast has also proven a prolific area for exploration and 17 new fields have been opened there with eight new sands found in older fields. The largest field found in this area is Timbalier Bay in La Fourche Parish with 25,000,000 bbls. of new oil. Several other fields are placed at from 10,000,000 to 15,000,000 bbls. capacity.

In California five new fields account for 42,000,000 bbls. of oil. They were Wasco in Kern County; Southeast Coalinga, Fresno County; Coles Levee, Kern County; Aliso Canyon and Harbor City, both in Los Angeles County.

There has been considerable activity in northern Louisiana and Arkansas and nearly 27,000,000 bbls. of oil is estimated to have been discovered.

The Illinois and Kentucky area has come in for a rather intensive play this year with 1,470 new completions in Illinois and 743 in Kentucky during the first 10 months. These compare with a total of 776 for the same period in both states during 1937.

Oil is still being discovered in Oklahoma and Kansas, but only two pools of importance have been opened in Oklahoma during 1938, the Ramsey field and the new South Braman field. There were 15 new discoveries and 12 extensions in Oklahoma this year while 16 new fields were opened in 1937 and 21 extensions.

Kansas Still Active Area

Kansas offers an interesting study because during 1937 51 new fields were recorded and thus far this year there are 50 new fields. As the new pools during each period have much the same characteristics and it was estimated that 111,700,000 bbls. of new oil was found there last year, the estimate for 1938 has been placed at 100,000,000 bbls. based upon early returns from the fields and subject to revision later.

RATE OF DISCOVERY BY YEARS

YEAR	DISCOVERIES	PRODUCTION	ADDED TO RESERVES + OR —
1935	1,315,550,000	990,620,755	+324,929,245
1936	1,088,981,000	1,089,113,699	— 132,699
1937	1,848,568,500	1,264,117,102	+584,451,398
1938 (10 months)	1,572,500,000	1,001,612,600	+570,887,400

PRELIMINARY ESTIMATE OF NEW RESERVES—1938

Eastern Texas	18,325,000 bbls.	
North Texas	179,060,000 bbls.	
West Central Texas	7,800,000 bbls.	
Panhandle	360,000 bbls.	
West Texas	505,200,000 bbls.	
Texas Gulf Coast	138,000,000 bbls.	
Southwest Texas	136,275,000 bbls.	
Total for Texas		985,020,000 bbls.
Louisiana Gulf Coast	116,400,000 bbls.	
Louisiana Gulf Coast (new sands)	10,500,000 bbls.	
Total for Louisiana Gulf Coast		126,900,000 bbls.
North Louisiana and Arkansas	26,700,000 bbls.	26,700,000 bbls.
California	42,000,000 bbls.	42,000,000 bbls.
Rocky Mountain Region (Colorado, Wyoming, and Montana)	9,380,000 bbls.	9,380,000 bbls.
Illinois	224,000,000 bbls.	224,000,000 bbls.
Kentucky	3,500,000 bbls.	3,500,000 bbls.
Oklahoma	55,000,000 bbls.	55,000,000 bbls.
Kansas	100,000,000 bbls.	100,000,000 bbls.
Total for United States		1,572,500,000 bbls.

The pitch is dug from Trinidad Lake and taken to a rail conveyor

Trinidad Refineries Busy on Enlargement Program

By C. O. WILLSON

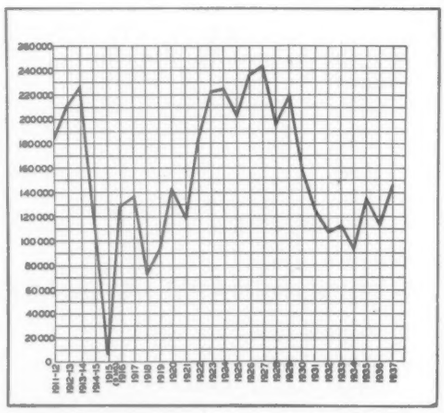
PORT-OF-SPAIN, Trinidad, Nov. 21.—The manufacturing end of Trinidad oil operations consists of six refineries, four of which are small skimming plants with two large plants which refine approximately 95 per cent of the island's output. In addition, three small gasoline absorption plants operate with casinghead gas with a fourth plant extracting gasoline from natural gas.

The smaller skimming plants are those of Coldan & Co., Ltd., not operating at this time; Trinidad Central Oilfields, Ltd., at Tabaquite; Trinidad Lake Asphalt Co., at Brighton, and Trinidad Oil Fields Operating Co., Ltd. The output of the last named plant is sold locally and distributed outside Trinidad partially through the facilities of the West Indian Oil Co., a Standard of New Jersey marketing unit.

The United British Oilfields of Trinidad, Ltd. (Shell) has a refinery at Point Fortin which is refining approximately 18,000 bbls. of crude daily. The present refinery consists largely of a Trumbull still operation. Ground has been broken on an enlargement program which will increase the capacity to around 30,000 bbls. daily. The company is the fourth largest producer on the island and is also a large buyer. Its exports are distributed largely through the facilities of the Asiatic Petroleum Co.

The largest refinery is that of the Trinidad Leaseholds, Ltd., and is located at Point A Pierre. The company is an independent unit which is also the largest producer and buyer of crude oil. It is completing a program which gives it a well-rounded operation with a capacity in excess of 30,000 bbls. daily. This program, which represents an expenditure of $3,000,000 to $4,000,000, includes operations which are new in processing.

One of these is the use of furfural in refining Diesel fuel of high cetene number. Practically all of the crude produced in Trinidad is comparatively low in gravity and has a naphthenic base. That received at Point A Pierre through the company's



Curve showing yearly output of asphalt from the Colony in tons from 1911

two pipe lines varies in gravity from 20 to 35 A.P.I., with an average of about 24.

While the motor spirit (gasoline) from this crude is high in octane rating, the naphthenic base is not so desirable from the standpoint of the ignition properties of Diesel fuels.

Furfural has been utilized over the past four years in the solvent refining of lubricating oils. In this operation a light fuel oil is treated with furfural in much the same manner as when lubricating stocks are treated. The result is a 55 per cent yield of special Diesel fuel oil with the cetene number increased to 57 from 35. The remainder of the charge after furfural is recovered is suitable for fuel oil.

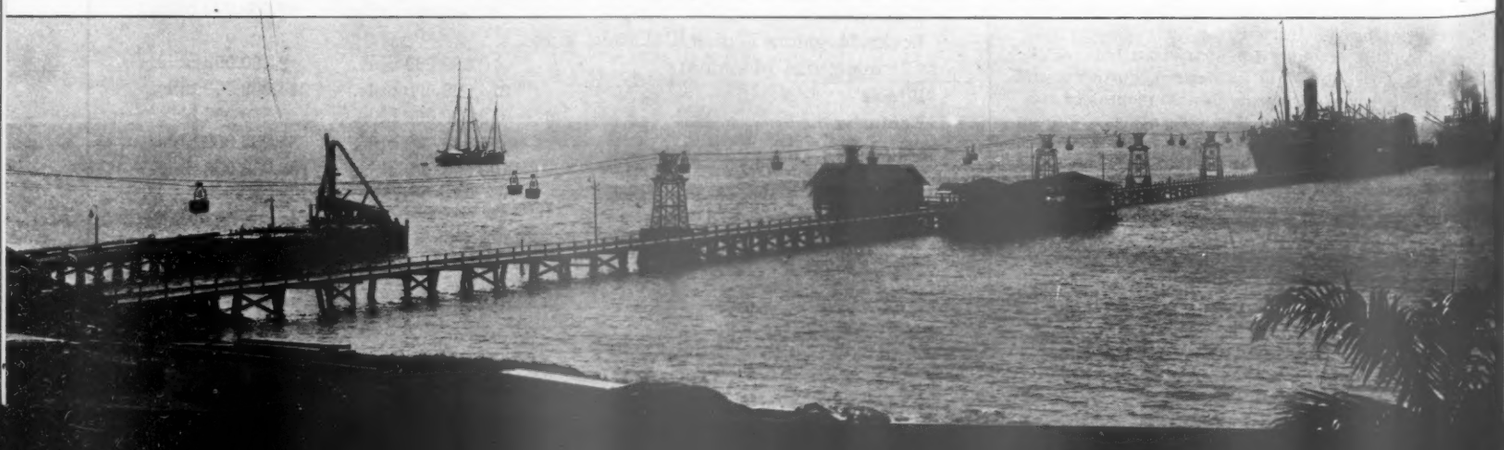
The operation also includes the production of isooctane through catalytic polymerization and hydrogenation, a U.O.P. development, with butane and butylene recovered from the cracking operation available as charging stock. The Schultz process for the production of hydrogen with steam and iron ore is part of this operation.

The remainder of the operation follows conventional lines as is possible with a plant that refines a wide range of light and heavy end products largely absorbed in the United Kingdom.

The main features of the plant are indicated in the accompanying generalized diagram. The crude is first topped in three atmospheric pipe stills with motor spirits, kerosene distillate, Diesel oils, gas oil and fuel oils obtained as shown in the diagram. The heavy naphtha cut is reformed and kerosene distillate is treated in an Edeleanu (SO_2) operation. The cracking stock for three Dubbs units is the heavy residuum from this cracking operation. This combination unit is continuous and is tied in as shown with the reforming, debutanizing, and rerun operations. Provision is made for a vacuum operation with the residuum in order to secure, if necessary, the maximum yield of fuels suitable for marketing. This is only one of several flexible features.

The refinery has its own acid plant and gen-

Asphalt being conveyed in crude form to holds of ships



After the still operation the asphalt is drawn off in barrels for shipment

erates its own electric power. The refinery site includes the main operating offices and also housing for many of the staff.

Trinidad Asphalt

While the production of asphalt from the famous lake is not as large as it was a few years ago, the lake itself, located 58 miles south of here, still captures the tourists' attention far more than the petroleum operations. The lake, discovered by Sir Walter Raleigh in 1595, continues to furnish asphalt which is sold throughout the world. The production last year was 145,904 tons, of which 90,872 tons were exported. The production this year so far is running behind 1937.

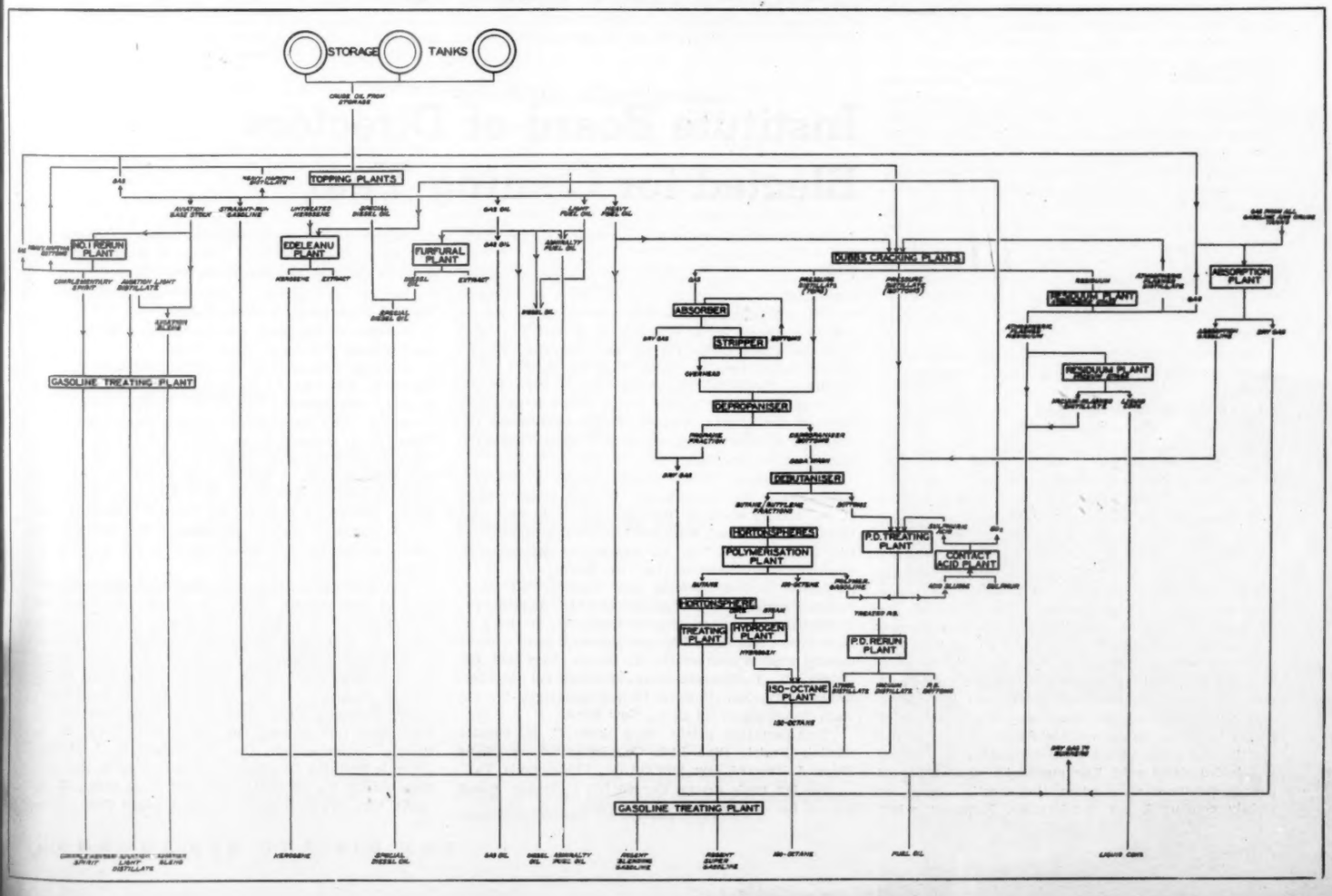
The lake covers an area of 114 acres with a depth of 285 feet at the center. The level of the lake has dropped only about 20 feet in the past 50 years. The lake consists of about 12 per cent asphalt, the balance being powdered limestone, with crushed stone occasionally found.

The accompanying photographs illustrate the operation which has not changed greatly in recent years. The operation is carried on by the Trinidad Lake Asphalt Operating Co., Ltd. The asphalt is broken up by digging. In its crude form it is usually brownish in color, wet with surface water and filled with cavities made by gas. The pieces are carried to the buckets of the cars. Work is generally carried on in two shifts, with no work on the lake during the hottest period of the day, between 12 o'clock and 4 p.m.

The asphalt is shipped in two grades—the crude form and refined. In the first case when the crude asphalt is to be shipped to the pier the cars from the lake are halted under a conveyor cable. The hooks from the conveyor cable are swung into place and the big buckets are lifted from the truck and started down a hill. The carriers are clamped to the moving cable, all the buckets moving down at the same rate of speed. The boat is loaded in this manner. The asphalt congeals again in the boat and has to be removed at the point of destination in much the same manner that it is taken from the lake.

The asphalt, when it goes to the plant, is dumped into stills or driers. This operation is largely for driving off water. The stills consist of large tanks heated with steam coils. The melted asphalt or dried asphalt is then drawn into barrels and is ready for shipment.

Refinery flow diagram—Trinidad Leaseholds, Ltd., Point A Pierre



Glycerin From Oil

Glycerin, a basic commodity of trade and industry, may now be manufactured from petroleum in large quantities and at a cost which is below the present market, according to Dr. E. C. Williams, vice president of the Shell Development Co., who is also in charge of research and development for the company at its Emeryville, Calif., plant.

This statement was made by Doctor Williams before a dinner-meeting of the International Institute of Technologists held in Chicago during the progress of the A.P.I. convention. In brief, Doctor Williams said, "We have had in operation now for more than a year a small commercial plant producing glycerin from petroleum gases. The quality of the product is equal to, if not better than the finest grades of glycerin now on the market, and I am satisfied that the cost of production leaves a comfortable margin for profitable commercial operation at present price levels, which are already on the low side.

It is a problem which has engaged the attention of research workers, both academic and industrial, for many years. There are several methods by which this synthesis has been proposed, first and most obvious by the hydrolysis of 1.2.3. trichlorpropane. The fact that trichlorpropane, if made is difficult to hydrolize is, however, not such a stumbling block as the fact that it cannot be economically manufactured (as for example by the direct chlorination of propane, or by the further chlorination of 1.2 dichlorpropane, which could easily be obtained by adding chlorine to propylene). Trichlorpropene can be made in a pure state by adding chlorine to allyl chloride. Allyl chloride appears therefore the only commercially likely starting point for the manufacture of 1.2.3 trichlorpropane.

Glycerin may also be made by the hydrolysis of dichlor- or monochlor-hydrin. Both these chlorhydrins are made by the addition of hypochlorous acid to allyl chloride or allyl alcohol respectively. So here again the key material is seen to be allyl chloride. By many similar arguments and experiments we came to the conclusion that allyl chloride is the key to glycerin synthesis.

It was found, surprisingly enough, that when isobutylene was chlorinated at ordinary temperature the chlorine did not enter to any appreciable extent into combination at the double bond, but by substitution attached itself to one of the saturated carbon atoms. (The methallyl chloride and alcohol so produced are now available commercially.) We have explored now for several years the mechanisms of such chlorinations but have still to regard this substitution reaction in the case of isobutylene as unique. It was in fact not the clue to the substitutive chlorination of propylene. In the course of that work, however, we investigated chlorination reactions in general over a rather wide range of organic hydrocarbons, particularly with a view to determining what it was that controlled addition or substitution reactions and, if possible, ways of directing them.

There are several means available for accelerating or perhaps modifying the course of a chlorination reaction—for example:

1. Radiation by actinic light.
2. Presence of a catalyst.
3. Induction of substitution by a concurrent reaction of chlorine addition, a mechanism very thoroughly studied by Professor Stewart and co-workers.

It was found that none of the first three influences gave the result we hoped for, and we found nothing in the literature to guide us on the influence of temperature.

I will not now go into the exhaustive researches which were carried out upon the influence of temperature on the mechanism of chlorination of olefines. To cut a long story short, we find it possible by chlorinating olefines (in this particular case propylene) at temperatures between 400 and 600° C., to limit the reaction virtually entirely to one substitution. You would think that the chemical and mechanical hazards of such operation would be insurmountable, and it is of course very easy to get complete inflammation of the reacting materials with a yield of nothing but carbon and hydrochloric acid. The mechanical difficulties of such procedures also, when the reactions are not rightly conducted, are considerable. However, when conditions are correctly chosen, the desired reaction proceeds smoothly in the direction desired, with yields of allyl chloride amounting to 80 per cent of theory on both the propylene and chlorine. We believe it quite possible eventually to obtain yields as high as 85 to 90 per cent of allyl chloride, the remainder being some isomeric vinyl chloride, some di-substituted olefines, and a very little dichlorpropane.

The allyl chloride so made may then be transformed to glycerin by three alternative processes: Either conversion to 1.2.3. trichlorpropane by addition of chlorine, or to dichlorhydrin by chlorhydrination, or by preliminary hydrolysis to allyl alcohol followed by chlorhydrination to glycerin monochlohydrin. All these processes have been worked out to completion as also has the electrolytic chlorhydrination of allyl alcohol.

The hydrolysis of allyl chloride or of glycerin chlorhydrins is itself a difficult technical problem, since so many by-products may be formed by slight variations of conditions, particularly of acidity or alkalinity, during hydrolysis. We have found it necessary to devise automatic controls operated by tungsten, calomel and glass electrodes at various points throughout the plant; these in turn regulate continuously through motor driven valves the streams of organic chlorides and alkali.

The refining of the crude glycerin presents also new features not met with in the refining of glycerin from fat, but those also have been satisfactorily overcome. When we remember that certain of the intermediate products, particularly allyl chloride and alcohol, are highly toxic materials, we feared that the glycerin so produced might contain toxic or irritant impurities. However, these points have been tested in our pharmacological laboratories and it has been found that even under such severe tests as filling the stomach to capacity with synthetic glycerin, or injecting glycerin in quantity into the muscles, no ill effects have been produced, indeed less than is caused by U. S. P. glycerin.

From the economic point of view we have to recognize that glycerin is now a by-product of the soap industry. Its price is therefore subject to wide fluctuations, as would be expected by a product which must be thrown away if not sold. The market price for the highest grades of glycerin has fluctuated over a period of years from 10 cents per pound, or even a little lower at the depth of the depression, to 60 and 70 cents per pound under war conditions. A year ago the price was 30 cents per pound; at the present moment it is, I think, around 12 cents per pound. The average over any long period of years is around 15 to 16 cents. The value of synthesizing glycerin from petroleum, therefore, lies in the possibility which it gives of stabilizing prices of a universally used commodity. It would not, I think, be anybody's intention to compete with existing supplies to the extent of driving down prices to unprofitable levels, but we have new processes which, if it were necessary, could produce the whole world requirements of glycerin from petroleum gases. This is sure to exercise a stabilizing influence on a fluctuating commodity; while if the capacity of existing sources should fall below requirements, the petroleum industry can now step quickly into the breach.

A.P.I. Convention Reflections

Institute Board of Directors Elected for Coming Year

The following directors were elected by the members of the institute:

Production group, Pacific Coast: Dana Hogan, Hogan Petroleum Co., to succeed W. H. Berg, of Standard Oil Co. of California, who was transferred to the distribution group; R. A. Broomfield, Barnsdall Oil Co.; L. P. St. Clair, Union Oil Co. of California. Central United States: Amon G. Carter, Fort Worth, Tex.; E. A. Landreth, Landreth Production Corp., Fort Worth; E. H. Moore, Tulsa; Ralph Pryor, Pryor & Lockhart, Wichita, Kans.; J. A. Vickers, Vickers Petroleum Co., Wichita. Eastern United States: E. L. Shea, Tide Water Associated Oil Co., New York.

Manufacturing group, Pacific Coast: C. E. Olmstead, Texas Co., Los Angeles. Central United States: C. M. Boggs, Kanotex Refining Co., Arkansas City, Kans.; Roy B. Jones, Panhandle Producing & Refining Co., Wichita Falls, Tex. Eastern United States: W. V. Hartman, Gulf Refining Co., Pittsburgh, Pa.; Harry A. Logan, United Refining Co., Warren, Pa.; W. E. Smith, Standard Oil Co. (Kentucky), Louisville, Ky.

Distribution group, Pacific Coast: W. H. Berg, to succeed the late K. R. Kingsbury, whose term expired. Central United States: H. M. Dawes, Pure Oil Co., Chicago; L. L. Marcell, Socony-Vacuum Oil Co., Inc., Kansas City, Mo. Eastern United States: E. W. Sinclair, Consolidated Oil Corp., New York.

Transportation group, Pipe lines: C. H. Kountz, Sinclair Prairie Pipe Line Co., Independence, Kans. Ships: J. Howard Pew, Sun Oil Co., Philadelphia, Pa.

Foreign trade group, Europe: W. C. Teagle, Standard Oil Co. of New Jersey, New York.

Supply group: J. L. Shakely, Frick Reed Supply Co., Tulsa, to succeed W. J. Morris; E. S. Dulin, Byron Jackson Co., Los Angeles, to succeed W. M. Patterson.

Natural gas group: J. D. Creveling, Panhandle Eastern Pipe Line Co., New York.

Natural (casinghead) gasoline group: W. K. Warren, Warren Petroleum Corp., Tulsa.

At-large group: C. J. Barkdull, Standard Oil Co. (Indiana), Chicago, to succeed E. J. Bullock; Jacob France, Mid-Continent Petroleum Corp., Tulsa; Wirt Franklin, Wirt Franklin Petroleum Corp., Ardmore, Okla.; S. A. Guiberson, Jr., Guiberson Oil Co. Dallas, Tex.; W. F. Humphrey, Tide Water Associated Oil Co., San Francisco; D. J. Moran, Continental Oil Co., New York; T. Rieber, Texas Co., New York; W. G. Skelly, Skelly Oil Co., Tulsa; R. W. Stewart, Chicago, and K. W. Adams, Phillips Petroleum Co., Bartlesville, Okla., to fill the unexpired term of the late F. R. Coates.

The board of directors reelected the following members of the at-large group: T. H. Barton, Lion Oil Refining Co., El Dorado, Ark.; Amos L. Beaty, New York; E. R. Brown, Magnolia Petroleum Co., Dallas; J. A. Brown, Socony-Vacuum Oil Co., Inc., New York; P. H. Curry, South Penn Oil Co., Pittsburgh; W. S. Farish, Standard Oil Co. of New Jersey, New York; Harry Frueauff, Cities Service Co., New York; H. R. Gallagher, Consolidated Oil Corp., New York; B. F. Harris, National Tube Co., Pittsburgh; E. J. Henry, Atlantic Refining Co., Philadelphia; George A. Hill, Jr., Houston Oil Co. of Texas, Houston; H. L. Hunt, H. L. Hunt, Inc., Tyler, Tex.; R. B. Lloyd, Lloyd Corp., Ltd.,

Los Angeles; John M. Lovejoy, Seaboard Oil Corp. of Delaware, New York; N. C. McGowen, United Gas Public Service Co., Houston; I. A. O'Shaughnessy, Globe Oil & Refining Co., Minneapolis, Minn.; R. G. A. Van der Woude, Shell Union Oil Corp., New York; Earle W. Webb, Ethyl Gasoline Corp.; New York, and R. L. Wheelock, Wheelock & Collins, Corsicana, Tex.

Executive Committee Enlarged By Action of Board

Membership of the board's executive committee was increased from 12 to 19 members, as follows:

F. A. Leovy, Gulf Oil Corp., Pittsburgh, Pa.; Charles F. Roeser, Roeser & Pendleton, Fort Worth, Tex.; John A. Brown, Socony-Vacuum Oil Co., Inc., New York; B. L. Majewski, Deep Rock Oil Corp., Chicago; W. A. Jones, Cities Service Co., New York; R. G. A. Van der Woude, Shell Union Oil Corp., New York; H. F. Sinclair, Consolidated Oil Corp., New York; J. D. Collett, O'Keefe & Collett, Fort Worth, Tex.; W. S. S. Rodgers, Texas Co., New York; E. G. Seubert, Standard Oil Co. (Indiana), Chicago; W. S. Farish, Standard Oil Co. of New Jersey, New York; C. M. Boggs, Kanotex Refining Co., Arkansas City, Kans.; W. H. Berg, Standard Oil Co. of California, San Francisco; W. F. Humphrey, Tide Water Associated Oil Co., San Francisco; J. L. Hamon, Cox & Hamon, Dallas, Tex.; W. G. Skelly, Skelly Oil Co., Tulsa; Robert H. Colley, Atlantic Refining Co., Philadelphia, Pa.; Frank Phillips, Phillips Petroleum Co., Bartlesville, Okla.; H. M. Dawes, Pure Oil Co., Chicago.

The board reelected D. E. Buchanan, Hanlon & Buchanan, Tulsa, chairman of the membership committee.

J. Howard Pew and Eric Weber New A.P.I. Vice Presidents

The board of directors elected the following officers of the American Petroleum Institute for the coming year:

President, Axtell J. Byles, of New York, to succeed himself.

Vice president for production, George A. Hill, Jr., Houston Oil Co. of Texas, Houston, Tex., to succeed himself.

Vice president for refining, J. Howard Pew, Sun Oil Co., Philadelphia, Pa., to succeed W. S. S. Rodgers, Texas Co., New York.

Vice president for marketing, Eric Weber, Eureka Oil Co., Cincinnati, Ohio, to succeed C. E. Arnott, Socony-Vacuum Oil Co., New York.

Executive vice president, W. R. Boyd, Jr., of New York, a reelection.

Treasurer, Otto Donnell, Ohio Oil Co., Findlay, Ohio, a reelection.

Secretary and assistant treasurer, Lacey Walker, of New York, a reelection.

Assistant secretary, John S. Cooke, of New York, a reelection.

New Orleans Chosen for Midyear Meeting

New Orleans was chosen as the location for the midyear convention of the A.P.I. after strong bids were introduced by Tulsa, Fort Worth and Colorado Springs. The dates for the convention will be announced by the executive committee later.

Southwestern Division

Preparation of the program for the 1939 spring meeting of the southwestern district of the American Petroleum Institute's division of production has been placed with a new program committee, of which E. P. Hubbard, of Gulf Oil Corp., Houston, Tex., is chairman. Other members are R. S. Dewey, Humble Oil & Refining Co., Midland, Tex.; T. W. Johnson, United Gas Co., Shreveport, La.; R. H. McLemore, Sun Oil Co., Beeville, Tex.; L. A. Ogden, Pure Oil Co., Fort Worth, Tex.; P. D. Torrey, Sloan & Zook Co., Houston, Tex.; and J. E. Warren, Carl B. King Drilling Co., Dallas, Tex.

General Johnson Recommends Publicity on Accomplishments

Gen. Hugh S. Johnson, former N.R.A. director, in addressing the general session Thursday, said:

"The trouble is that there seems to be a kind of theory in all that has happened recently—or indeed for many years earlier—that industry is a kind of culprit and that governmental relations with it must approximate those of a policeman toward a suspect rather than those of two parts of the American system with a joint responsibility for the common welfare.

"It is indispensable that we see clearly the dividing line beyond which government intervention cannot be permitted to go unless we are to lose the blessings of private initiative and a free economy. I think that line is not at all hard to draw. Government should say, in the public interest, what business may do on the one hand, and what it may not do on the other. It should lay down the rules of competition as the Code Okeson lays down the rules for a football game. I think business would welcome that. That is exactly what our government has never done to this day under the antitrust acts or any other legislation.

"But the step over that dividing line is when government, instead of defining the 'may' and 'may not' rules, steps in to utter 'must' rules—that business must do this or that. When that happens, government is not merely regulating business, it is running business. From the moment that happens we are headed straight for a Communist or Fascist society.

"This economic system of ours is the greatest that ever came from the hand of man. It has done more for the common man, in greater numbers and in a shorter period of time, than any other system on earth. Government didn't invent it, activate it or even improve it, except as government has kept it free. The secret of its tremendous success is precisely that freedom. What that did was to unleash the driving forces of millions of separate individuals and ingenuities all striving to better themselves and their surroundings. Millions of men and millions of minds—acting freely—they can be expected to cover every diversity, make more progress and create more true wealth for more people than any single mind or man or any small group of minds or men directing them from above.

"The function of government is to lay down fair rules of the game and to keep men from injuring each other. The moment government steps into play the game itself, or to direct those myriad freedoms, it simply stops the dynamo that turns all the wheels of progress and stalls the machine that made this the greatest nation on earth in the shortest time in history.

"There is nothing elsewhere in this troubled world that offers any improvement or even any comparison. Our need is not for government to fight business, or business to fight government—not for government to run business or business to run government. It is only for business and government to pull together to cure the ills of this country and to defend it from all assaults. That need was never greater than right now."

In reply to the question: "Do you anticipate any government control of the oil industry?" General Johnson said: "Well, you probably can answer that question better than I can, except that I anticipate an attempt at government control of the oil industry. But if this industry can work out its own problem, with a little assistance through state compacts or state conservation laws, with some sort of coordination at the center, you don't need to fear any government control of the oil industry. But I will say this: That the industry has plenty of statistics to offset many of the arguments that are made in favor of that, and I don't think it is making sufficient use of them to sell this country on just such a dissertation as we heard from this reading stand from Mr. Pew. That, to me, was an overwhleming argument—and I made parts of it myself; but it isn't heard enough, loud enough, and widely enough distributed to this country but that the other propaganda that is going out has overshadowed the real case of that matter. That is another reason why, if you will man a committee to go into a fair investigation, you can present your case before the most effective sounding board that could be imagined, and should be done."

HUGH S. JOHNSON

Membership in Institute Gains Despite Trying Years

Although business has been passing through trying years and many trade associations have felt the effect in loss of members, the American Petroleum Institute has obtained 2,248 new members during the past five years. In the first 10 months of 1938, new regular members totaled 491, new divisional members 508, made up as follows, production division 290, refining division 136, marketing division 82.

A report of the committee on by-laws, with J. Edgar Pew, Sun Oil Co., Philadelphia, as chairman, was received and approved and recommended changes in the present by-laws adopted. They include provision for "honorary" and "active" members; special meetings to be held at call of board of directors or executive committee; 100 members for board; 19 members for executive committee; board to meet semiannually, executive committee monthly except July and August.

Executive Committee Recast On Broader Lines

A distinct liberalizing of the work of the Institute's governing body was noted through the decision by the board of directors to increase the membership of the executive committee from 12 to 19. At the same time the board voted to reduce its members to 100. Previously there were 107 members on the board.

Expand Industries Committee

C. C. Herndon, vice president of Skelly Oil Co., was elected as an additional member on the American Petroleum Industries Committee.

AFTERTHOUGHTS AT THE A.P.I.

Axtell J. Byles

New York, president of the A.P.I.

Let's abandon the defeatist attitude. Let operators in the states where conservation laws are needed decide what is right and then go to work and fight for it. It is inconceivable to the petroleum industry as represented here that any state should longer delay its conservation legislation. It is the hope of all that Illinois promptly will pass adequate conservation laws and thus prevent the reckless, wasteful development and production of its wonderful petroleum reserves. This hope applies also to the other producing states that have not yet passed conservation laws and to those that have not joined the Interstate Compact. It is distinctly the sentiment of the representatives of the petroleum industry gathered here that the state regulatory bodies will regulate production within their own state borders to the end that production will be efficient and without economic waste. I feel I am fully warranted, in view of the sentiment and the feeling of this meeting, in sounding an optimistic note that, through full cooperation within the law, stability and confidence will return to our industry.

Joe C. Maxwell

Fort Worth, Tex., independent producer

We producers in the Southwest are at present facing long payouts on our properties and wells, but with gasoline stocks at what I am told are reasonable levels, fuel oil consumption starting at a faster rate and crude stocks near the economic low limit, there are bright prospects for improvement.

B. L. Majewski

Chicago, gen. sales mgr., Deep Rock Oil Corp.

I do not believe there will be an oil and gas conservation law enacted in Illinois for the present. People fear they will be prorated out of natural markets within short distances of the producing areas.

W. S. S. Rodgers

New York, president, The Texas Co.

I can no more look into the future of the next three months than I can forecast three years ahead. An optimistic view deceives the stockholders and a pessimistic stand destroys hopes of the industry. I can say that the thought and attention now directed to conditions in the oil business is healthy and that the more carefully we study conditions as they develop from day to day, or month to month the better will be all concerned.

E. A. Landreth

Fort Worth, Tex., president, Landreth Production Co.

While the oil industry is currently in a critical condition, the willingness of men to sit down and talk over problems as occurred last week at the A.P.I. convention in Chicago is ample indication to me that all elements in the petroleum business have cause to look for and seek improvement.

Col. T. H. Barton

El Dorado, Ark., president, Lion Oil Refining Co.

I never believe anything an oil man says. He must be an incurable optimist to be in the oil business. If a man isn't an optimist he doesn't belong in the oil business. I'll tell you how optimistic I am, I made a bet that product prices will increase by January 1, 1939.

Bruce Clardy

Dallas, Tex., Heyser, Heard & Clardy

I expect the oil industry to muddle along until Congress convenes and then everyone will get the "legislative jitters." We go from one session of Congress to the next wishing we had some law to correct conditions which develop in the recesses and then live in fear that something will be enacted that we do not want.

J. A. LaFortune

Tulsa, vice president, Warren Petroleum Co.

Natural gasoline, which represents about ten per cent of the total motor fuel production, is at present enjoying its peak demand. Practically all of the natural gasoline in storage in the Mid-Continent field is sold and will be delivered to refiners and cargo buyers by the close of the year. The price, which is now at its peak, will probably remain fixed until some time in December when the usual decrease in demand will cause a slight reaction of perhaps one-quarter cent per gallon. The demand for aviation gasoline, volatility, octane and lower front-end specifications represents the reason for the excellent condition of the natural gasoline market at this time.

R. E. Hardwicke

Fort Worth, Tex., attorney

It seems that we must avoid bureaucratic control of the oil industry, but we must have a bureaucrat to tell us what to do. It is hard to conceive a more mixed-up set of recommendations than are made by some of our benefactors who have arisen to lead us from the fog of uncertainty.

Hugh S. Johnson

Former NRA administrator

I think unquestionably the Department of Justice is launched on a program of plastering antitrust suits against every industry it can lay its hands on for the avowed intention of forcing a constant decree, thus giving the government a voice in what may and what may not be done by business.

The OIL AND GAS JOURNAL

PRODUCING REFINING NATURAL GASOLINE PIPE LINE

Published weekly by The Petroleum Publishing Company at Tulsa, Oklahoma

Swell Start

Those who approached Chicago last week with apprehension found themselves on departure in much better spirits.

This was made possible by the breath of understanding which was reflected in the liberalization of policy by the board of directors of the American Petroleum Institute, and again in the democratic enlargement of the executive committee which gave the independent producers greater voice in that directing body.

The open forum discussion of certain economic ills which now exist in the industry before the board was a distinct innovation.

The subjects included producing and purchasing policies now being practiced in certain Mid-Continent areas, South Louisiana and Illinois. Through the time-honored medium of frank exchange of information and opinion a basis for a fair understanding has been laid.

Deep and assertive divergence of viewpoint has marked the oil business almost from its start, due to two characteristics—its strongly individualistic traditions and the competitive cleavage between its divisions.

But experience has demonstrated, as in the matter of proration, that agreement and even cooperation can be secured among the most seemingly irreconcilable factors when they can be convinced it is essential to the welfare of the industry.

The chief difficulty has been to induce a willingness to listen to the other side. Once that obstacle is overcome and the facts can be presented frankly, the good sense of coming to an agreement is recognized.

The oil industry, after all, is a single family composed of various branches. When this family sat down to break bread at Chicago, some of its members saw matters in a different light and there is every reason to believe that favorable action will be forthcoming.

It was evident that the meetings dispelled possible feelings, relieved pressure and inspired hope. A spirit of cooperation seems to have been generated which should be productive of good results.

Although the meeting did not result in any immediate formal action upon the grievances which were aired, it cannot be said that this omission lessens the possibility of their correction.

There are times and places where formal action is impossible but fruition can be realized just the same.

A brief period of watchful waiting will follow but relief from certain disturbing conditions is expected.

A spirit exists within the industry today that will not be denied. The welfare of all concerned requires intelligent correction of existing sore spots.

The situation calls for more than promises. Resolutions have run their course. Action is desired.

The danger signals have been plain. There has been a disposition in some quarters to declare that, if relief cannot be obtained within the industry, Government will be asked to step in.

Self-interest alone should show that the existence of fair competition is the best argument against governmental interference which can be sponsored only as an alternative to monopoly.

No one who considers calmly which course is the better for himself and the industry can doubt the answer.

Supposedly conflicting interests will find that there is much more to be expected from working out differences among themselves than by having to submit to decisions in which they would have no say.

The problems are within the industry. They should be solved within the industry, and the meetings at Chicago indicate they can and will be, if wise counsels prevail.

Programs and Meetings

Petroleum Electric Power Club In Tulsa, December 8-9

The Petroleum Electric Power Club will hold its annual conference on December 8 and 9, at the Mayo Hotel, Tulsa. This will be the tenth annual meeting of the club and several prominent oil men and electric manufacturers' representatives have accepted assignments on the program which follows:

Thursday, December 8

9:30 a.m.—Address of welcome, Fred W. Insull, president, Public Service Co. of Oklahoma.

9:50 a.m.—"After Ten Years," Don McKee, vice president, Empire District Electric Co.

10:30 a.m.—"How the Power Company Can Help the Oil Producer," Jerry Robertson, power engineer, Public Service Co. of Oklahoma.

11:15 a.m.—General discussion on use of electric power for production.

1:30 p.m.—"Why Power Utilities Fail to Secure More Oil Pumping and Production Loads in the Oil Fields," George Isley, engineer, Shell Petroleum Corp.

2:20 p.m.—"Electric Power for Pipe Line Pumping."

2:50 p.m.—Discussion, Stanley Learned, chief engineer, Phillips Petroleum Co.

3:10 p.m.—"Electrification of Oil Refineries," K. K. Kreamer, Houston Lighting & Power Co.

Shutting Off Water in East Texas To Be Discussed at Kilgore

The problem of shutting off salt water from oil producing wells in the East Texas field will occupy the attention of East Texas oil men when the East Texas Chapter of the American Petroleum Institute, Division of Production, meets in the high school auditorium at Kilgore, Texas, on Tuesday evening, December 6.

The Railroad Commission of Texas has indicated a deep interest in the meeting and information has been received from Col. E. O. Thompson that he will be present and it is expected he will have some pointed remarks to make with respect to the production of salt water from the East Texas field and the necessity of keeping the water in the ground wherever possible. The discussion will be led by C. P. Parsons, vice president of Halliburton Oil Well Cementing Co., Duncan, Okla., who will speak on "Squeezing Cement Against Permeable Formations." Mr. Parsons will give the results of some laboratory tests on forcing cement through sands of various permeability and will discuss the theory of squeeze cementing.

The problem as it is especially related to the East Texas field will be presented by Phil Montgomery, engineer for Halliburton Oil Well Cementing Co. in the East Texas field. Mr. Montgomery will discuss, from his experience in plug-back work in the field, the results obtained in shutting off water. He will also touch on the use of the different type cements used with varying degrees of success in plug-back work.

Prior to the meeting the usual A.P.I. dinner will be held at the Kilgore Hotel.

Houston A.P.I. Chapter Meets November 28

A program of wide interest has been arranged for the meeting of the Houston chapter of the American Petroleum Institute at 7:30 p.m., Monday, November 28, in the Houston Chamber of Commerce Auditorium.

The development and application of a new aluminum alloy that has the comparative strength of steel but is still drillable is to be told by O. Hammer, chief engineer of Security Engineering Co., Whittier, Calif.

Some very interesting tests have been performed recently on a Gulf Coast drilling well, where a four-cylinder double-acting steam engine being introduced to the oil industry was installed. W. H. Griffith, engineer with Ames Iron Works, Olean, N. Y., will describe the engine and the results of the tests.

Natural Gas Accountants of Oklahoma Meet in Tulsa

The annual meeting of the Natural Gas Accountants Association of Oklahoma was held Friday night, November 18, at the Alvin Hotel, Tulsa. Approximately 35 natural gas utility accountants were present from over the state. Directors and officers were chosen as follows:

Chairman, Ray K. Osborn, State Fuel Supply Co., Oklahoma City; vice chairman, H. L. Hayden, Zenith Gas System, Inc., Alva; secretary-treasurer, Wendell Thomas, Southwest Natural Gas Co., Inc., Ada.

Directors: Ray K. Osborn, State Fuel Supply Co., Oklahoma City; M. S. Crossley, Consolidated Gas Utilities Corp., Oklahoma City; H. L. Hayden, Zenith Gas System, Inc., Alva; Wendell Thomas, Southwest Natural Gas Co., Inc., Ada; J. L. Miller, Oklahoma Utilities Co., Bristow; H. O. Buoen, Central States Light & Power Corp. of Oklahoma, Tulsa; Oakah L. Jones, Oklahoma Natural Gas Co., Tulsa.

M. S. Crossley, of the Consolidated Gas Utilities Corp., spoke on "Present Status and Principal Points of the New National Association of Railway and Utilities Commissioners Classification of Accounts."

Oklahoma Oil Scouts Association

A large attendance was present at the bi-monthly meeting of the Oklahoma Oil Scouts Association, in Ardmore, Okla., November 18. Ed Morgan, Sun Oil Co., chairman, was assisted by "Doc" Foster, Pure Oil Co.; Howard Starns, Shell Petroleum Corp., and Jerry Roberts, Amerada Petroleum Corp., in presenting the program. Papers were given by Doyle Miller and Bernard Langley, Dowell Chemical Co.; M. A. Atterbury, Lone Star Gas Co., and Karl Nichols, Skelly Oil Co.

"Tax" King, Transwestern Oil Co., president of the association, has called the next meeting in Enid, Okla., January 27. Rex Coffey, Magnolia Petroleum Co., will be chairman.

Petroleum Section Officers of National Safety Council

The new officers of the executive committee of the petroleum section of the National Safety Council are as follows:

General chairman, J. H. Brown, Tide Water Associated Oil Co., New York; news letter editor, R. S. Huffman, Oklahoma Natural Gas Co., Tulsa; engineering committee chairman, G. E. Carpenter, Humble Oil & Refining Co., Houston, Texas; health committee chairman, Dr. James W. Long, Gulf Oil Corp., Port Arthur, Texas; industrial data sheet chairman, H. E. Dischinger, Shell Petroleum Corp., St. Louis; program committee chairman, H. W. Boggess, Sinclair Prairie Oil Co., Tulsa; publicity committee chairman, J. C. Young, Tide Water Associated Oil Co., Tulsa; statistics committee chairman, Hadley H. Myers, Sinclair Prairie Oil Co., Tulsa; visual education committee chairman, E. D. Murphey, Mid-Continent Petroleum Corp., Tulsa; Atlantic division chairman, A. M. McKean, Pan American Petroleum & Transport Co., New York; Great Lakes division chairman, J. C. Bernd, Sinclair Refining Co., East Chicago, Ind.; Gulf division chairman, T. S. Maffitt, Jr., Houston Oil Co. of Texas, Houston, Texas; Mid-Continent division chairman, H. T. Markee, Phillips Petroleum Co., Bartlesville, Okla.; Pacific Coast division chairman, A. L. Anderson, Standard Oil Co. of Calif.; Rocky Mountain division chairman, Boyd V. Osborn, Standard Oil Co. (Ind.), Casper, Wyoming.

Past general chairmen—R. W. Black, Standard Oil Co. of N. J., Elizabeth, N. J.; H. W. Boggess, Sinclair Prairie Oil Co., Tulsa; R. S. Bonsib, Standard Oil Co. of N. J., New York; A. W. Breeland, Lone Star Gas Co., Dallas, Tex.; V. R. Currie, Texas Co., Houston, Tex.; R. E. Donovan, Standard Oil Co. of Calif.; C. L. Hightower, United Gas Pipe Line Co., Houston, Tex.; G. O. Lockwood, Cities Service Oil Co., Bartlesville, Okla.; Geo. F. Prussing, Union Oil Co. of Calif., Los Angeles; R. B. Roaper, Humble Oil & Refining Co., Houston, Tex.; E. J. Senne, Socony-Vacuum Oil Co., Inc., New York; C. W. Smith, Standard Oil Co. (Ind.), Chicago, Ill., and H. D. Wallace, Sinclair Prairie Oil Co., Tulsa.

Secretary—H. N. Blakeslee, American Petroleum Institute.

CALENDAR

December.

MID-CONTINENT OIL AND GAS ASSOCIATION, Standing Tax Committees, Dallas, Tex., Dec. 1-2.

AMERICAN SOCIETY OF MECHANICAL ENGINEERS, New York, Dec. 5-9.

POWER & MECHANICAL ENGINEERING, thirteenth national exposition, Grand Central Palace, New York, December 5-10.

OIL AND GAS ASSOCIATION OF MICHIGAN, annual meeting, Mount Pleasant, Mich., Dec. 7.

WEST CENTRAL TEXAS OIL AND GAS ASSOCIATION, annual meeting, Abilene, Tex., Dec. 10.

INTERSTATE OIL COMPACT COMMISSION, quarterly meeting, Fort Worth, Tex., Dec. 14-15.

January, 1939.

SOCIETY OF AUTOMOTIVE ENGINEERS, annual meeting, Detroit, Mich., Jan. 9-13.

February.

NATIONAL ASPHALT CONFERENCE, Los Angeles, Calif., week of February 27.

March.

AMERICAN SOCIETY FOR TESTING MATERIALS, committee week and regional meeting, Deshler-Wallick Hotel, Columbus, Ohio, Mar. 6-10.

INDIANA INDEPENDENT PETROLEUM ASSOCIATION, spring convention, Hotel Severin, Indianapolis, March 14-16.

AMERICAN ASSOCIATION OF PETROLEUM GEOLOGISTS, annual meeting, Oklahoma City, Okla., March 22-24.

April.

AMERICAN CHEMICAL SOCIETY, Baltimore, Md., April 3-7.

NATIONAL PETROLEUM ASSOCIATION, semi-annual meeting, Hotel Cleveland, Cleveland, Ohio. April 13-14.

OIL-WORLD EXPOSITION, Houston, Tex., April 24-29.

May.

PETROLEUM ELECTRIC SUPPLY ASSOCIATION, Houston, Tex., May 2-4.

PETROLEUM INDUSTRY ELECTRICAL ASSOCIATION, Rice Hotel, Houston, Tex., May 2-4.

STATE CAPITALS

OKLAHOMA

WILLIAM J. ARMSTRONG, conservation officer, has called a meeting of oil producers and purchasers and the conservation department for Monday, November 28, at 2 p.m., at which will be discussed the consumers' market demand for crude in December, and rules and regulations for the taking of potentials in all Class B pools in the state and in the Wilcox zone in the Oklahoma City field for the six-month period beginning January 1, 1939.

GOVERNOR-ELECT LEON C. PHILLIPS of Oklahoma called on President Roosevelt at the White House in the past week and discussed the problem of oil conservation. Later he told reporters he expected to take up with governors of other states the extension of the interstate oil compact and hoped to make it effective without federal regulation.

TEXAS

CONTINUATION OF TWO-DAY SHUTDOWNS during December was forecast by most operators following the state-wide hearing at Austin last week at which the Railroad Commission heard evidence for fixing the December allowable. Only one operator protested against the week-end shutins. Retention of the two-day shut-in would keep Texas' output within the Bureau of Mines estimated daily market demand for December, which is 1,343,900 bbls. daily or 27,100 bbls. less than the November estimate. Issuance of the December order, however, will be withheld until the week after Thanksgiving.

THE DECEMBER NOMINATIONS for the various Texas fields were announced as follows: Southwest Texas, District 1, 25,628 bbls.; Southwest Texas, District 2, 75,032; Gulf Coast, 266,188: Southwest Texas, District 4, 277,956; East Central Texas, 64,395; East Texas, District 6, outside of East Texas field, 56,282; East Texas, 394,036; West Central Texas, District 7-A, 39,032; West Central Texas, District 7-C, 33,780; West Texas, 229,760: North Texas, 61,020; Panhandle, 68,470. Total, 1,591,559 bbls.

All wells in East Texas were reported to be connected to pipe lines; in fact, when Chairman Thompson asked if anyone knew of any unconnected wells in Texas there was no response. Retention of the Saturday and Sunday shutdowns was made a vital condition by purchasers in East Texas who, at the instance of Chairman Thompson, earlier in the week provided outlet for production from 565 wells which had been unconnected. The average bottom-hole pressure in the East Texas field increased 1.51 pounds during the period from October 8 to November 8, V. E. Cottingham, chief engineer of the commission, testified. Pressure on November 8 was 1,108.21 pounds per square inch, he said, representing a decline of 11.77 pounds for the past 10 months.

HEARINGS ON WASSON AND SLAUGHTER fields of West Texas were held by the Railroad Commission at which well spacings and bases of allocating production were taken up. At both hearings plans subscribed to by the majority of operators in the fields were for relatively wide well spacing during its present development. Then, if such action later proved feasible, the fields could be drilled to a greater well density. At present, however, most operators feel that a wide well spacing should be used due to a limited field outlet which would tend to lower the per-well allowable if a great number of wells were drilled.

A SUIT CHALLENGING LEGALITY of the state-wide two-day-a-week oil-production shutdowns was filed in state District Court at Austin, Tex., on Monday by Ray Starnes, of Gladewater, an operator in the East Texas field.

Starnes claimed the closings were invalid in East Texas because they cut production of the wells below the amount to which they were entitled under the marginal well statute.

KANSAS

GOVERNOR WALTER HUXMAN of Kansas says he knows of no movement on the part of Kansas officials to have Kansas drop out of the interstate oil compact. Other state officials denied there was any basis for the report.

ILLINOIS

A STUDY OF ILLINOIS OIL INDUSTRY for which the new state legislative council may propose regulation of production was completed on November 15 by the council's research department.

The report itself made no recommendation for new oil control laws, but had something to say about putting a tax on production.

Headed by Representative Benjamin S. Adamowski, Chicago Democrat, the legislative council of 21 members representing both houses of the legislature met in Springfield this week to draft a program to be presented to the sixty-second general assembly.

Listing arguments both for and against a production tax, the report said such a levy appeared to be constitutional since the attorney general in 1923 held licensing of natural resources was permissible provided it did not replace a property tax and that courts of other states had upheld similar laws. Doctor Kneior, research director, said, for example, a tax of 5 cents a barrel on the estimated 1938 output would give the state $1,075,000, while a tax of 5 per cent of the value of oil produced, at $1.25 a barrel, would bring in $1,343,250.

The report included letters from several county highway superintendents stating that seismograph tests were causing damage to roads and asking legislative protection.

CALIFORNIA

CRUDE OIL PRODUCTION in California during the first three weeks in November is within a few hundred barrels of the daily average for the same period last month, indicating that no progress has been made in effecting additional curtailment. The daily allotment of the state has remained unchanged for several months, the Central Committee of California Oil Producers having set the amount at 610,000 bbls. per day with a tolerance of 5,000 bbls. daily to take care of contingencies. The Central Committee will meet within the next week to set the allowable for the month of December and will probably allow the allotment to remain unchanged although even conservative independent oil producers and refiners are wondering what it is all about. Successful discovery of major oil fields, with another discovery possible, together with consistent development work in older fields, tends to indicate that the situation will not correct itself in the immediate future on the basis of a normal decline in production and a substantial increase in demand. General business conditions on the Pacific Coast continue very unsatisfactory.

ARKANSAS

THE ARKANSAS STATE BOARD OF CONSERVATION last week fixed allowables for the Schuler field. The Jones sand production was limited to a total of 14,619 bbls. daily, and production from the Reynolds lime was fixed at 1,499 bbls. daily. The allowable figures were made effective November 16, representing adjustments over the allocation placed on the field at the first of the month.

Acme

State capitol, Austin, Texas

Use of Premium Gasoline Is Stimulated By New Cars

NEW YORK, Nov. 21.—Efforts to reach increased efficiency in internal combustion motors have been pursued with the customary vigor of the automobile industry in producing 1939 cars with the result that "tailor made" premium gasoline occupies a stronger position than ever before. In step with the fuel demands that 1939 automobiles will place on the petroleum industry, chemists and engineers have been busy for months testing and perfecting gasolines designed to give maximum performance in new motors. To meet new requirements and to overcome what few undesirable characteristics became evident with less modern fuels under service conditions, the petroleum industry has gone even higher on the octane ladder. End of the octane race appears to be not yet in sight.

Almost sensational results have been realized by some companies in the brief interval of a few weeks in which their latest premium motor fuel creations have been available to consumers. Acceptance of the newer fuels, which in addition to other characteristics have a higher average octane rating, is said to be a fact beyond question. This brings up the necessity imposed upon competing refiners to match the best motor fuels available.

There appears to be a well established precedent for the increasing use of premium motor fuels. Impressive increases have been registered in each of the past four years in sales of premium (Ethyl) gasoline. In the neighborhood of 35,000,000 bbls. of premium motor fuel will have been consumed by the end of this year. Consumption of premium motor fuel is currently between 6 and 7 per cent of the total. The percentage of premium gasoline used exclusively in private automobile operation is much higher, probably as much as 10 per cent or more. Numerous stationary engines operating on gasoline are not designed to consume premium fuel and the services to which they are assigned do not require performance beyond standards obtainable from the less expensive grades.

In the absence of complete detailed information, the extent to which the average compression ratio of 1939 engines will be increased over that of 1938 cannot be determined. But that the average will increase beyond that of 6.38 to 1 in 1938 engines is assured. The increase is likely to be slight, but in the upper brackets of compression even a slight advance is important from a standpoint of producing a motor fuel which will give satisfactory performance.

Monthly sales figures released by Ethyl Gasoline Corp., owner of the patent on combining tetraethyl lead with gasoline, show that each month since 1934 premium gallonage has been substantially ahead of corresponding months of the previous year. Total premium gallonage for 1935 was 11 per cent over 1934; 1936 was 26 per cent over 1935; 1937 was 35 per cent over 1936. The first six months of 1938 were 30 per cent ahead of 1937 and it is expected the past six months will show a relative gain. The increased demand for premium motor fuels becomes all the more significant in view of the fact consumption in 1934 touched bottom at 3 per cent of the total, after three years on the toboggan.

With increases recorded each year since 1934 it is less difficult to understand reports of doubled and tripled premium gallonage in some divisions of oil companies that have recently made drives for premium customers. The continuing four-year trend to premium gasoline is also more significant when it is realized it necessarily involved the switching by over 1,000,000 car owners from other grades of gasoline.

An examination of engineering data for passenger cars shows the average compression ratio has increased from 5.72 to 1 for 1934 engines to 6.38 to 1 for 1938 models. Indications are that 1939 models now being announced will make still greater demands on fuel antiknock quality. Increasing knowledge on the part of car dealers and mechanics of the importance of correct spark setting probably also has contributed substantially to premium gasoline demand, since few cars built since 1932 fail to show a marked improvement in performance when the spark is set for full power.

Frequently premium quality gasoline is used in trucks and buses where severe demands in time or power make maximum performance essential. A recent survey in the engineering construction market shows that 10 per cent of the gasoline used by 80 contractors was premium quality. These 80 contractors were engaged in new construction work valued at $41,700,000. A breakdown of their fuel requirements showed the use of approximately 15 gallons of gasoline for each $100 worth of construction. It is interesting that in this type of heavy construction, 85 to 88 per cent of gasoline used was regular grade, or house brand, leaving only 2 to 5 per cent third-grade gasoline.

Despite the quality of modern regular grade motor fuel, the trend to premium gasoline has been accelerated by those companies which have introduced new standards with octane quality higher than previously sold. With increasing volume in the premium field, it is probable more oil companies will seek a greater share of this more lucrative market as one means of offsetting increased labor costs, taxation and the narrow margins frequently found between primary and consumer markets.

On a territorial basis, in Canada and in the states of New Hampshire, Vermont, West Virginia and in the District of Columbia, premium motor fuel accounts for approximately 20 per cent of total sales of companies holding an Ethyl license. Percentages in Connecticut, Massachusetts, New Jersey, New York, Pennsylvania, Rhode Island, Kentucky, and California are not far behind the top bracket.

Bureau Crude Estimates Down for December

WASHINGTON, D. C.—The Bureau of Mines forecasts the daily average supply of domestic crude required to meet market demands in December at 3,305,800 bbls., or 2.5 per cent less than estimate for November and 4 per cent under actual demand December 1937. The decline is due to provision for an increase of only 3,400,000 bbls. in gasoline stocks, compared with 6,164,000 last December.

Domestic motor fuel demand is estimated at 40,100,000 bbls., exports at 3,300,000.

Estimated December crude demand by principal states is: Texas, 1,343,900; California, 589,700; Oklahoma, 500,700; Louisiana, 248,000; Kansas, 159,000; New Mexico, 100,300.

New Employe Retirement Plan By Standard of Indiana

A special meeting of the stockholders of Standard Oil Co. of Indiana will be held at Whiting, Ind., on December 22 to consider a new employe retirement plan, according to an announcement by President Edward G. Seubert. The meeting will settle also the policy of the company regarding similar plans that may be proposed by the managements of subsidiaries for their employes.

Provisions for the old age security of about 25,000 employes of the Standard of Indiana group is involved, the benefits to be over and above those payable under the federal social security act. The new plan recognizes past and future service in two distinct ways.

For service after December 31, 1938, annuities will be purchased under a partnership arrangement. Employes may voluntarily contribute 2 per cent of their monthly pay up to $250 a month and 5 per cent of all pay above that amount. The company will match their payments. The amount accumulated each year for each employe will be invested in an annuity assuring him a monthly income after retirement.

An employe having 10 years of service will acquire a vested right in the company's payments to the insurance company on his behalf. If he withdraws from the plan or dies earlier he or his estate will get back his own contributions, with interest compounded at 2½ per cent.

While monthly income payable for life will be the standard form of settlement, various options will also be available.

In recognition of service prior to January 1, 1939, the company expects to continue to pay annuities out of current earnings much as at present.

Southeastern Kansas Producers Preparing for Hearing

Southeastern Kansas producers, threatened with loss of market due to Sinclair Prairie Oil Marketing Co.'s plan to disconnect some stripper wells and curtail purchases from others, met in Independence November 21 to prepare evidence for the Corporation Commission hearing in that city November 28. The meeting, sponsored by the recently organized Montgomery County Independent Oil Producers Association, was attended by producers from Wilson, Chautauqua, Labette and other southeastern Kansas counties.

With purchases of crude in some areas curtailed 50 per cent, the producers expressed fear a complete shutdown of their properties would result if the company persists in its plan.

Customs Check on Mexican Expropriated Oil

WASHINGTON, D. C.—The Customs Bureau has granted a bonded warehouse permit to Eastern States Petroleum Corp., Houston, for refining and reexportation of oil taken from expropriated American property in Mexico. This action will aid in preventing sale of this oil in American markets.

The bureau has investigators in Mexico probing charges made by North Texas Oil and Gas Association that Mexican oil is being dumped here or exports subsidized. If charges are substantiated a dumping or countervailing duty may be imposed.

New Ruling on Royalty

WASHINGTON, D. C.—A new regulation of the Interior Department prohibits filing assignment of royalty interests in oil and gas prospecting permits and leases until actual valuable discovery of oil or gas. The purpose is to prevent promoters from telling investors department's approval of assignments means approval of value of the investment.

THE MARKETS*

CRUDE OIL: *Though unsettled conditions persist in the crude market, uneasiness is subsiding gradually under the influence of steadily declining stocks, marked rise in the demand for heavy fuel oil, and the remarkably high fall consumption of gasoline, along with fair movement of distillates. Nervousness over the possibility of further price-cuts is disappearing. The increasing quantity of Michigan crude sold below posted prices is a disquieting factor.*

REFINERY: *Natural gasoline and heavy industrial fuels were conspicuous among refinery products this week, the former being increasingly scarce, with prices higher, and the latter moving into a firmer position as a result of reviving industrial activity. Motor fuel steady at unchanged prices in most areas. Light heating oils inactive. Wax vigorous. Lubricants in the Mid-Continent territory extremely weak.*

TANK WAGON AND POSTED DEALER: *Adjustments in gasoline prices to meet local conditions were made at scattered points in the southern district. Dealer prices were lowered in several areas of the Rocky Mountain region.*

FINANCIAL: *Severe declines were recorded by the oil shares, along with the rest of the security market. Average of 30 representative stocks for week ending November 19: High, 29.58; low, 28.14; close, 28.50. Week ending November 12: High, 29.87; low, 28.40; close, 29.53.*

**Detailed information in Market section.*

Effect of British Trade Pact on American Oils

By HENRY D. RALPH

WASHINGTON, Nov. 21.—The petroleum and related industries benefit somewhat by the new British and Canadian trade agreements, mainly through stipulations that those countries will not increase duties on specified products during the three-year life of the agreements. The United States has not reduced import taxes on petroleum products, but has in turn bound certain products against new duties.

In the Canadian agreement the only pertinent concession made by the United States is the binding of natural gas on the free list. Imports of Canadian natural gas last year were valued at $12,267. In return, Canada has cut in half its duty on gas for heating, cooking, or illuminating gas imported by pipe line. The old rate of 6 cents per 1,000 feet is cut to 3 cents. Canadian imports of gas from the United States last year were valued at $75,000.

A considerable group of United States petroleum products is listed in the Canadian agreement to continue the benefits which they were given by the earlier reciprocal trade agreement with Canada signed in 1936, under which they received so-called most-favored-nation treatment, which means that they will enjoy the lowest rates of duty now or hereafter paid by any non-British country on importation into Canada. These products are as follows:

COMMODITIES ON WHICH CANADIAN DUTIES HAVE BEEN LOWERED

Canadian Tariff Item	Description	Unit of duty	Rates of duty Dec. 1935	Rates of duty Nov. 1938	1937 Imports from U.S. ($1,000)
267	Crude petroleum in its natural state: R(ii) Lighter than 0.8155 specific gravity at 60° F.	.....	Free, 1½c Imp. gal, or 25%	½c Imp. gal.	363
R 267a	Crude petroleum, n.o.p.	....	½c or 1½c gal. or 25%	½c gal.	28
R 267b	Petroleum tops, 0.7249 specific gravity or heavier at 60° F.	Imp. gal.	2½c or 1½c	1c	
269	Products of petroleum n.o.p.: R(i) Lighter than 0.8236 specific gravity at 60° F.	Imp. gal.	2½c	1c	2,779
R 269a	Engine distillate oil 0.8017 specific gravity or heavier at 60° F.	Imp. gal.	2½c	½c	106
271	Lubricating oils composed wholly or in part of petroleum: (a) valued at less than 25c per gal.	Imp. gal.	2½c	2½c	1,663
	(b) n.o.p.	Ad val.	20%	17½%	1,702
272a	Petroleum greases and lubricating greases, n.o.p.	Ad val.	20%	17½%	332
272b	Paraffin wax	Ad val.	25%	22½%	95
R 275	Liquefied petroleum gases for heating, cooking, or illuminating, imported in containers	Ad val.	25%	13½%	10
R 821	Petroleum oil for manufacture of white oils medicinal and technical grades	Ad val. or imp. gal.	20% or 2½c	5%	10

"R" appearing before a Canadian tariff number indicates that the September, 1938, rate of duty is a reduction by legislative action below the reduced rate secured in January, 1936, as a result of most-favored-nation treatment.

British Agreement

The British trade agreement applies to not only the United Kingdom but also to the Crown Colonies and other non-self-governing parts of the British Empire, although not to the Dominions. The only concessions affecting the oil industry made by the United States are two bindings on the free list. Natural asphaltum and bitumen, of which the United States purchased $240,000 from British colonies in 1937, is bound on the free list, and the United States also agrees not to impose any import tax on fuel oil, gas oil, liquid derivatives of crude petroleum, gasoline or other motor fuels, and paraffin and other petroleum wax products when any of these are sold for supplies of vessels. Such products are already exempt from the import taxes when sold for ships' supplies.

Concessions made by the United Kingdom of interest to the petroleum industry consist of agreements not to increase the present rates on carbon black, petroleum jelly, natural asphalt and bitumen, and paraffin wax. The United States is practically the sole supplier to the United Kingdom of carbon black from natural gas, and the trade amounts to from $2,500,000 to $3,000,000 annually. The present British duty of 10 per cent is said to have had no effect on imports from the United States, but in view of the size of the trade the State Department declared it was desirable that the rate be bound against an increase.

The same explanation was made with regard to petroleum jelly, which also has a duty of 10 per cent. The United States supplies around 95 per cent of British imports, valued at about $600,000 annually. The British rates of 10 per cent on paraffin wax and natural asphalt are also bound against increase. Exports of the former from the United States to the United Kingdom have averaged close to $2,000,000 in recent years, an equal amount being supplied by British India. The United States is the principal foreign supplier of natural asphalt and bitumen to the United Kingdom, shipments last year being valued at $200,000.

Among the actual duty reductions made by the British is that on gasoline and oil pumps for use in filling stations, the duty being reduced to 15 per cent ad valorem from 20 per cent. The U. S. exports of these pumps to the United Kingdom was formerly around $1,000,000 per year but dropped to almost negligible proportions after imposition of the British protective duty in 1932, and the State Department says the reduction in this duty should help to restore the competitive position of United States products.

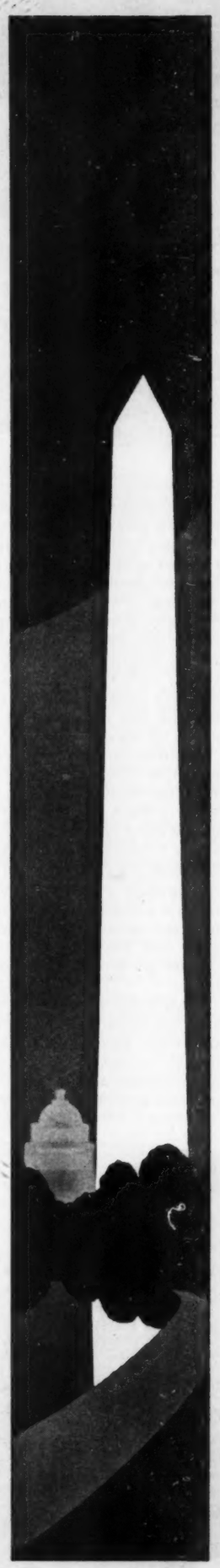
Under the British agreement, a large number of colonies make concessions on United States lubricating oils, lubricating greases, and asphalt and bitumen. These concessions consist of actual reductions in duty, bindings against the imposition of additional duties, or of agreements to treat United States products on a parity with those from points within the British Empire.

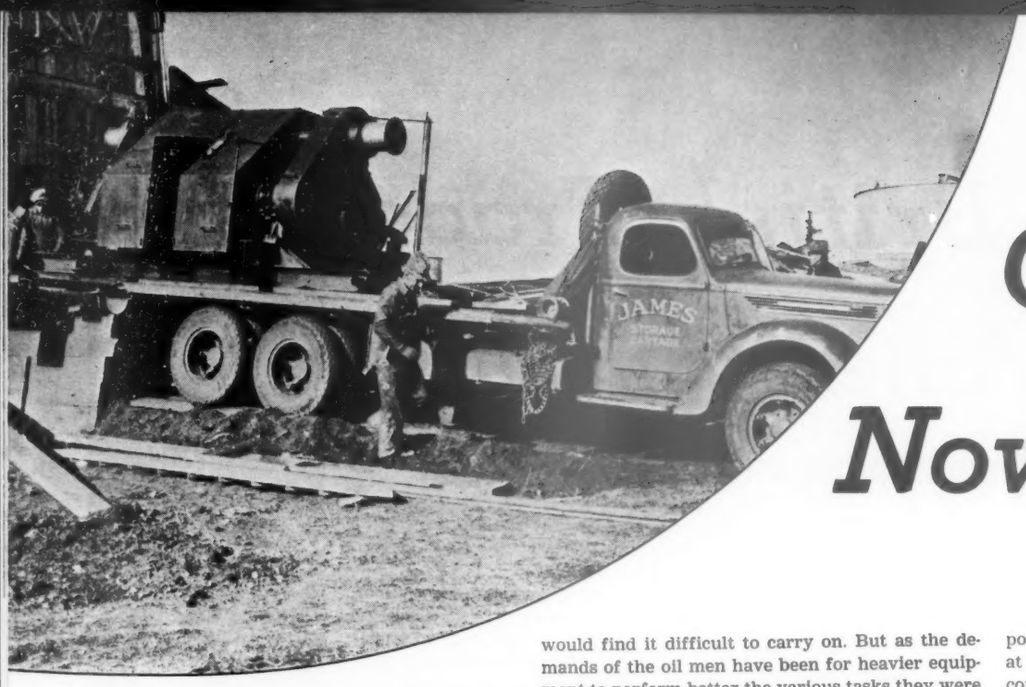
On lubricating oil nine colonies reduced the duty, 17 bound against additional duties, and five granted parity. On lubricating greases four colonies made reductions, 21 bound against increase, and eight granted parity. On asphalt and bitumen one colony made a reduction in duty, seven bound against increases, and six granted parity.

Monopoly Inquiry

The oil industry will escape the opening guns of the monopoly investigation, it is apparent from the plans for starting hearings just announced by the Temporary National Economic Committee. In fact, the oil industry as such may not be hailed before the committee for many months, since for the time being the committee intends to conduct its economic investigations on the basis of practices and conditions rather than industry by industry, and individual industries will be used only as illustrations of certain conditions. However, it is almost a certainty the oil industry will be brought into the investigation to illustrate a number of situations, since the Department of Justice is already engaged in collecting voluminous information on the industry.

The hearings will open in Washington on December 1 and will run continuously for three weeks, and resume after the Christmas recess.





Oil-Field Now Highly

By L. G. E. BIGNELL

It was in 1901 when the automobile industry was in its infancy that the first rotary-drilled well was completed in the Spindletop field near Beaumont, Tex., by Captain Lucas. The equipment used in drilling that well has been reported as one 9 by 12-inch steam engine weighing 2,000 pounds and costing $250, drawworks weighing 5,000 pounds and also costing $250, an 8 by 5 by 10-inch slush pump that weighed 2,000 pounds and cost $235 and the traveling block with 16-inch sheaves weighing about 300 pounds and costing $115. The total weight of this outfit was less than 10,000 pounds and cost about $850. This material was hauled to the location in wagons drawn by mules.

Contrast this with the recently completed well drilled by Continental Oil Co. in Section 8-27-24, Kern County, California, and known as No. 2-A KCL, having a total depth of 15,004 feet and producing about 3,000 bbls. of oil per day initial from a zone between 13,085 to 13,170 feet. To drill this well about 1,500,000 pounds of equipment was used costing about $125,000. To get this machinery on location a fleet of modern heavy-duty trucks was used and some of those trucks actually weighed more than the entire machinery needed to drill Captain Lucas' history-making gusher 37 years before.

This comparison gives some idea of the giant strides made in both the oil and automobile industries which have grown together and have supplemented one another during this period. Without modern trucks and trailers the production, transportation and refining branches of the oil industry would find it difficult to carry on. But as the demands of the oil men have been for heavier equipment to perform better the various tasks they were faced with in producing more than 3,250,000 bbls. of oil per day, the automotive industry has responded with bigger and heavier duty trucks until now it is possible to move equipment weighing more than 30 tons and when location is reached to set it in position. Drawworks that weigh as much as 24 tons are handled as units and engines weighing more than 10 tons, along with slush pumps weighing from 9 to 14 tons, are moved as units and spotted in their proper places by truck equipment, which in addition to trucks and trailers consists of winches and gin poles designed for handling this heavy machinery.

Long Trips

The business of oil field hauling has become a rather specialized one and in the Mid-Continent states there is an organization known as Mid-Continent Oil Field Haulers Conference with 137 members in Texas, 70 in Oklahoma, 25 in Kansas, 20 in Louisiana, 10 in Arkansas and 4 in New Mexico, or a total of 266 firms and individuals engaged in this business. These hauling contractors are in strategic cities and towns adjacent to the oil fields and points where warehouses for the supply companies are located. Their business takes the trucks through all of these states and hauls of more than 1,000 miles are not uncommon.

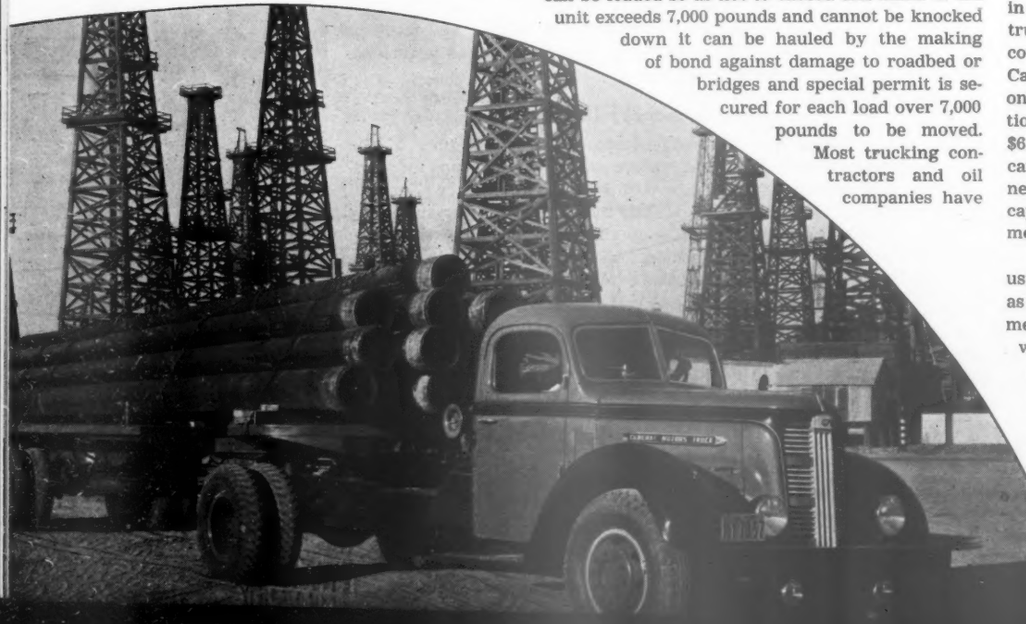
Laws covering the movement of trucks are not uniform in these several states and this makes it necessary for them to adjust their loads to conform with the laws of each state, as it is necessary to register and stand inspection at each state line crossing. For instance, 7,000 pounds is the limit on the highways of Texas if the material handled can be loaded so as not to exceed this limit. If the unit exceeds 7,000 pounds and cannot be knocked down it can be hauled by the making of bond against damage to roadbed or bridges and special permit is secured for each load over 7,000 pounds to be moved. Most trucking contractors and oil companies have posted bond in Austin, Tex., which is left up at all times and applies to loads moving in any county in the state. The truck driver then applies to the county highway department for a permit which costs $5. Upon receiving this permit the truck is routed by such roads and over such bridges as the highway officials may consider safest for the load and this may mean the trucker is required to take his load over a round-about course to destination and travel many miles farther than necessary if the direct main highway could be followed.

A truck may carry 14,000 pounds of pipe or casing in Oklahoma but upon reaching the Texas state line it will be necessary to reduce the load to 7,000 pounds to conform with the Texas laws. This will mean that half of the pipe must be unloaded and left at the state boundary line station and the half is taken to destination and the empty truck then returns and picks up the other half of the load and delivers it. If, however, the load should consist of drawworks, boiler, slush pump or other unit which cannot be knocked down the trucker must secure the special permit referred to when he crosses the state line.

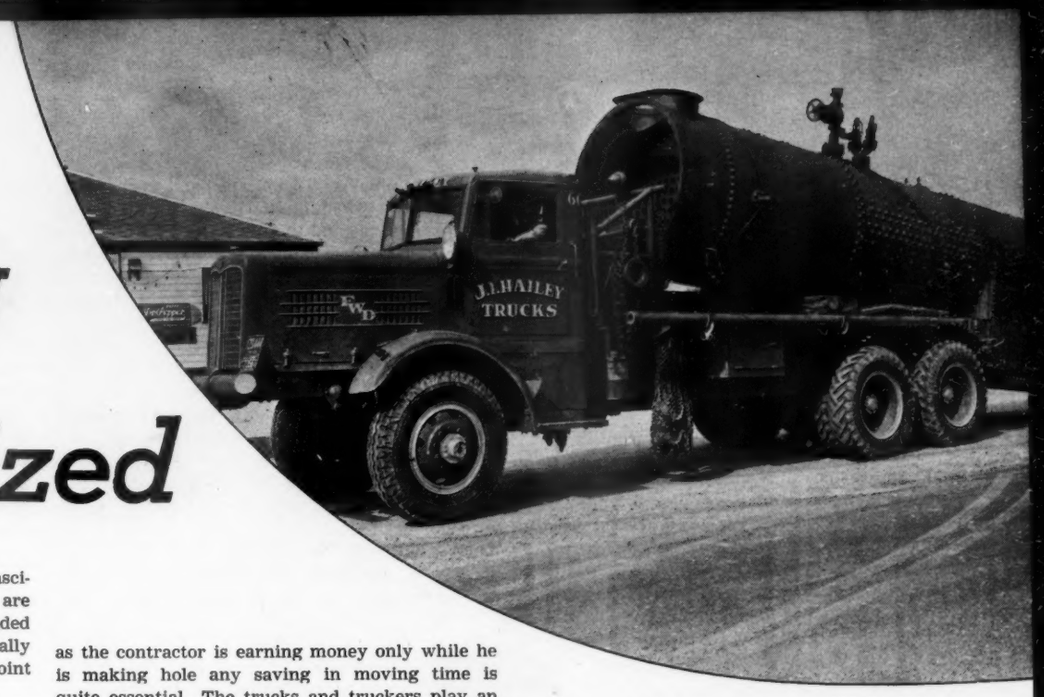
Interstate Troubles

Not only do the state boundary lines govern the weight of the loads to be hauled but hauling licenses differ in states and where a trucking contractor or oil company is doing business in more than one state he must pay the license fees in all states. If a truck unit weighs more than 12,000 pounds the license for doing business in Oklahoma costs $600 per year per truck. In Kansas the license fee is $250 and in Texas about $420. This means the contractor has more than $1,250 tied up in license fees if he is doing hauling in Oklahoma, Kansas and Texas, not including the monthly fee in Texas. Liability and property damage for a truck of this size costs about $350 per year but covers the movement of that truck in any state. Cargo insurance against damages on the road costs only about $50 per load. Then laborers' compensation costs $20 per $100 payroll in Oklahoma but only $6.12 in Kansas, and $14.18 per $100 in Texas. It can be seen that a trucking company doing business with from 10 to 25 trucks will need a large capital investment to take care of costs of equipment, depreciation, repairs, and taxes.

The personnel of the trucking companies is usually built up from men not previously engaged as drivers in this line of work, but rather from men who can handle the hauling equipment and who are trained for their special duties by the companies employing them. These men have no preconceived notions about how the loads should be handled and are therefore instructed by the foremen of the trucking companies. Once they are broken in to their duties they usually remain at the



Hauling Specialized



work a long time because it has a certain fascination for men who enjoy an outdoor life and are not afraid of hard work. When the truck is loaded the driver will take it to destination practically without stop and double back to the starting point or go to pick up another load.

The automobile manufacturers building this class of heavy equipment have become expert in design and use selected materials so the big trucks weighing more than 25,000 pounds without load are not hard to handle and are so built the loads they are required to move can be put on and taken off the trucks easily. To move the several units making up a rotary drilling outfit or other heavy pieces of equipment it is usual for a number of trucks to assemble in a fleet and go to the job together and assist each other in loading.

Heavy Hauling

A modern rotary rig requires about 14 trucks to move the equipment and they will vary in size from the very heaviest type trucks and trailers to 1- and 1½-ton units. To handle boilers, drawworks, steam or internal combustion engines, slush pumps and the accessories which go to make up the rig, the loads are divided about as follows:

For four boilers, four heavy-duty trucks with trailers are required. These trucks are usually equipped with winches and gin poles and they assist each other in loading and unloading these heavy pieces of equipment, some weighing more than 44,000 pounds. One truck will handle the drawworks which is now built as a unit and weighs up to 48,000 pounds. Another truck will handle either the steam engine or the internal combustion engine weighing about 20,000 pounds. Two trucks are needed for the two slush pumps weighing from 18,000 to 28,000 pounds apiece. The tool house is filled with miscellaneous fittings and material and weighs about 20,000 pounds loaded and it requires one truck. Rotary table, traveling and crown blocks, lighting generators and other units will require two more trucks. The other trucks are used with what is known as a "float" or a portable body laid between truck and trailer and carry pipe connections, valves and other accessories. The drill pipe is usually moved on light units which permits of it being racked and carried safely.

Drilling contractors have laid out the relative position of all equipment on location and the moving is done by taking those pieces of machinery first to be needed at the new location on the first loads. Boilers, or internal combustion engines, are moved first, drawworks next, and when they are set in place and the derrick floor laid it is possible to use the cathead for moving other machinery into place, hoisting crown blocks and rigging up. The truck winches play an important part in rigging up; for instance, machinery is placed and the crown blocks hoisted by the truck winch.

By having a definite program and placing each piece of machinery in proper relation to each other piece it is possible to save much time in connecting up and as the contractor is earning money only while he is making hole any saving in moving time is quite essential. The trucks and truckers play an important part in making this saving possible.

As more specialized lines of work were introduced the trucks were adapted to the requirements of these different branches of the oil industry until today specially designed and equipped trucks are common. Great fleets are used not only for the distribution of finished products but for carrying special equipment to aid men in the field in performance of their work.

Geological crews are provided with trucks that are used for many purposes in geophysical prospecting. The complete party is carried in passenger cars and accompanying a seismograph crew will be the portable core drilling unit to drill the shot holes for the explosives. Along with this car is the water truck. The recording instruments are carried in another specially equipped truck and these cars have been developed so they are very complete in all details. Surveyors have cars adapted to their particular requirements and carry their instruments in racks to avoid damage.

When the geological work has been completed and the location is staked for drilling, many wells are drilled with portable rotary outfits. These units may consist of several pieces of equipment mounted upon separate skids and hauled to location and then assembled upon trucks and the automobile engine used to supply part of the power. Drilling units have been developed suitable for drilling holes to depths of 4,000 feet and all equipment, with the drilling derrick, mounted upon one heavy-duty truck. These units have the advantage of flexibility of movement and can be moved from location to location quickly.

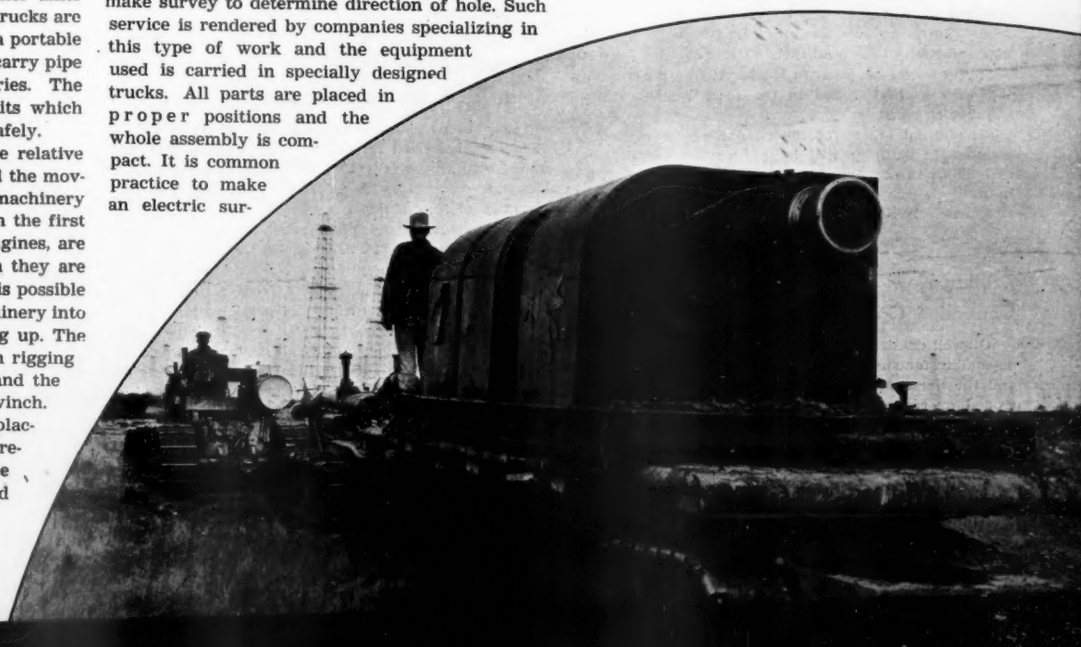
As the well is drilled it may be necessary to make survey to determine direction of hole. Such service is rendered by companies specializing in this type of work and the equipment used is carried in specially designed trucks. All parts are placed in proper positions and the whole assembly is compact. It is common practice to make an electric survey of holes before running casing. This requires special equipment and it is assembled on truck bodies designed for this particular purpose. The unit is driven to the well, the survey is made and record furnished within a short period.

When the hole is finished the casing is run and in many fields it is common practice to gun-perforate the casing opposite the producing formation. There are other uses for the gun perforator. All this work can be performed through the use of equipment carried in trucks specially designed for this service. There are instrument panels within such a truck and drawers and shelves and other built-in features necessary for this type of work.

After running the casing it is necessary to cement it in place. This is a highly specialized work and the equipment used has been developed to meet the ever-changing needs of the production department. On these heavy-duty trucks are mounted tanks, pumps and auxiliary equipment. Power is furnished by the automobile engine. The units are self-contained and can be driven to any location. Such cementing outfits are also used for other jobs in the oil fields.

In completing wells it may be necessary to shoot or acidize. The equipment for such work is mounted upon trucks that have been developed by companies rendering this service. The shooter's truck is provided with winding equipment for handling explosives in the hole. The explosive is carried in containers placed in rubber lined boxes to give maximum protection against premature explosion.

While acidizing limestone formations is relatively new the equipment used has been built up



to meet all requirements. The acid is carried in tank trucks and pumped into the wells with specially designed internal-combustion engine driven pumps. These pumps may be compounded to build up high pressures or to handle large volumes of acid in very short time as conditions demand.

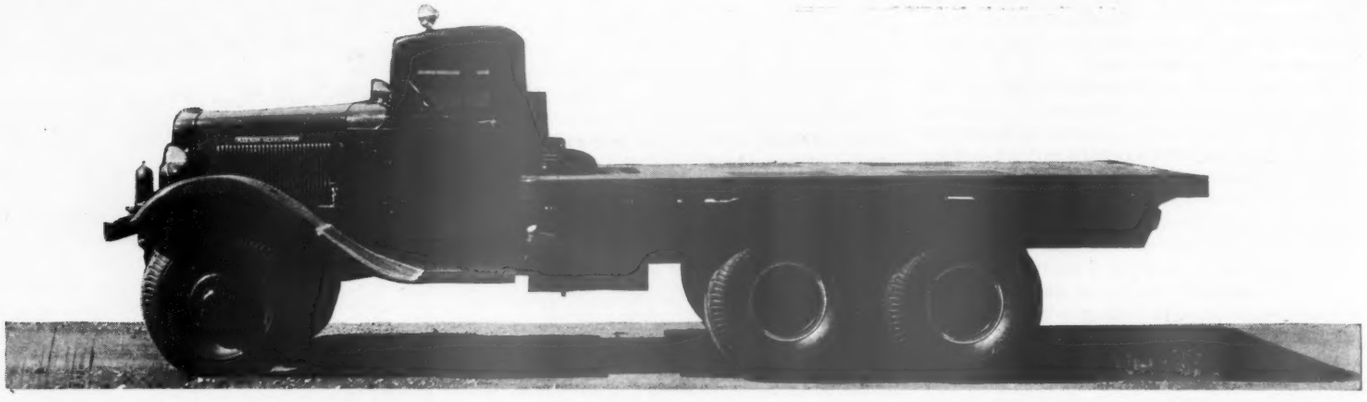
When the wells are on production it is necessary to pull tubing or rods and truck-mounted and powered winches are now common pieces of equipment owned by most producing companies. There are many variations in such winch outfits, each designed for some particular type of lease job.

For pipe line work many motorized pieces of equipment have been developed. Ditching machines, caterpillar tractors with special cranes, portable electric-generating units for welding, or gas-generating plants, truck-mounted, are used along the right-of-way for welding operations. When the pipe has been cleaned and wrapped and coated it is lowered into the ditch with the tractor-mounted cranes and the ditch filled with a "bull-dozer" or tractor-mounted scraper. With welded joints the pipe-line laying progresses at rapid rate and it is no longer necessary to establish camps along the right-of-way and move from location to location as the line is finished as it was in the day of screwed joints and horse-drawn vehicles.

When the pipe line is in operation it is necessary to patrol it to make checks for leaks or breaks and this work is done by crews traveling in specially designed and equipped trucks. In truck units of this type everything needed to make a repair is included because time is the essence of the operation.

In addition to the equipment described for the geological, production and pipe-line departments there are numerous special trucks used for portable laboratories, exhibition and other purposes. Some are designed and equipped by manufacturers having some particular piece of equipment to sell and desiring to take the product to prospective customers. Laboratories may be built and equipped by operating companies to facilitate special investigation work in the field. Many contain instruments and equipment especially designed for the particular work and as they can be taken to the location they serve to economize on time and reduce cost of investigation.

It is common practice to select trucks having the required capacity to handle the loads and then design and have built the special bodies needed for the particular duty. Some of these completed units cost from $25,000 to $35,000 each and others not so costly are used in large numbers so the total investment by the oil industry in this type of equipment runs into a large sum.



Plan Vocational Training In Refining Industry

Promotion of vocational training in the refining branch of the petroleum industry is to be undertaken in the near future under the direction of a committee on vocational training, appointment of which has been authorized by the general committee of the American Petroleum Institute's division of refining.

The committee will develop vocational training in refining in cooperation with state educational authorities along lines now followed in the producing branch. Thousands of oil field workers are attending night classes in Texas, Oklahoma, Kansas, and other states, and studying text books relating to their daily work and prepared cooperatively by state educational authorities and institute committees. It is estimated these production vocational training classes now have more than 15,000 "alumni."

The classes are designed to correlate elementary mathematics and other sciences with the daily jobs of oil men, and thus to prepare them not only for more expert and more remunerative endeavor, but for better jobs. The classes are attended also by many who had no opportunity to extend their early education because of the necessity of going to work. At the present time some 5,000 are enrolled in the industry's vocational training classes.

The initial efforts of the committee on vocational training in refining will be to develop courses and text books in cooperation with educational authorities in states where petroleum refining plants are located and which have provisions for such work.

Drilling Now Scientifically Controlled Operation

Oil-well drilling has changed in 15 years from a job depending for success upon the strength of equipment and the personal capabilities of the driller to a controlled operation employing several sciences and accurate control and measuring instruments, it was reported at the annual meeting of the American Petroleum Institute.

Speaking before the Division of Production group session on drilling and production practice, E. L. Decker, of Martin-Decker Corp., Long Beach, Calif., and N. L. Dorn, of Lane-Wells Co., Los Angeles, Calif., recommended that drilling crews be instructed in the systematic care and use of delicately balanced measuring instruments, possibly along the lines of the Institute's present vocational training program.

"Twelve or 15 years ago," they explained, "the only instruments to be found on a rotary drilling rig were the pressure gauges on the boilers. Today the driller can know, in pounds per square inch, what his circulation pressure is. He knows, in pounds, the total load on the derrick and the weight he is applying to the bit on bottom, thousands of feet away. He knows where the bottom is, and where the hole is going. Rotary-table speed, torque, mud density and viscosity, as well as other conditions, are subject to measurement. In short, wells today are drilled scientifically, with a half-dozen branches of knowledge available to help get the hole into productive sand. Engineers, metallurgists, geologists, and chemists share in the responsibility for the success or failure of well completions."

Socony and Anglo-Iranian Form Australasian Company

The Australasian Petroleum Co. with capital of $5,000,000 has been formed by Socony-Vacuum Oil Co. and Anglo-Iranian Oil Co., Ltd., for the purpose of carrying on exploration of Papua and the mandated territory of New Guinea.

The new company represents Australian, English and American interests. Oil Search, Ltd., and Standard of California are thought to have an interest in the combined company, but reports from Melbourne did not disclose the exact division of participation.

For more than two years the examination of New Guinea by air mapping and detail geological work has been under way and the preparations are complete for drilling the first of several projected tests. The aerial mapping program and geological examination was followed by core drilling because the expensive nature of drilling deep tests in this section of the world requires almost unlimited expenditures before moving in heavy equipment.

Congress of American Industry Platform for Job Making

Under the leadership of Charles R. Hook, president of the National Association of Manufacturers and president of the American Rolling Mill Co., manufacturers from all sections will gather at New York December 7, 8, and 9 for the annual Congress of American Industry sponsored by the association.

Mr. Hook, who recently returned from Europe as a member of the president's commission to study employment relations in Great Britain and Sweden, extended the invitation to manufacturers, saying:

"Finding jobs for the unemployed is America's No. 1 job. On the basis of N.A.M. committee reports, which will be presented, and speakers on the program, we hope to obtain an accurate cross-section of not only those factors which have blocked recovery for nine years, but also those that can be used to restore our economic equilibrium."

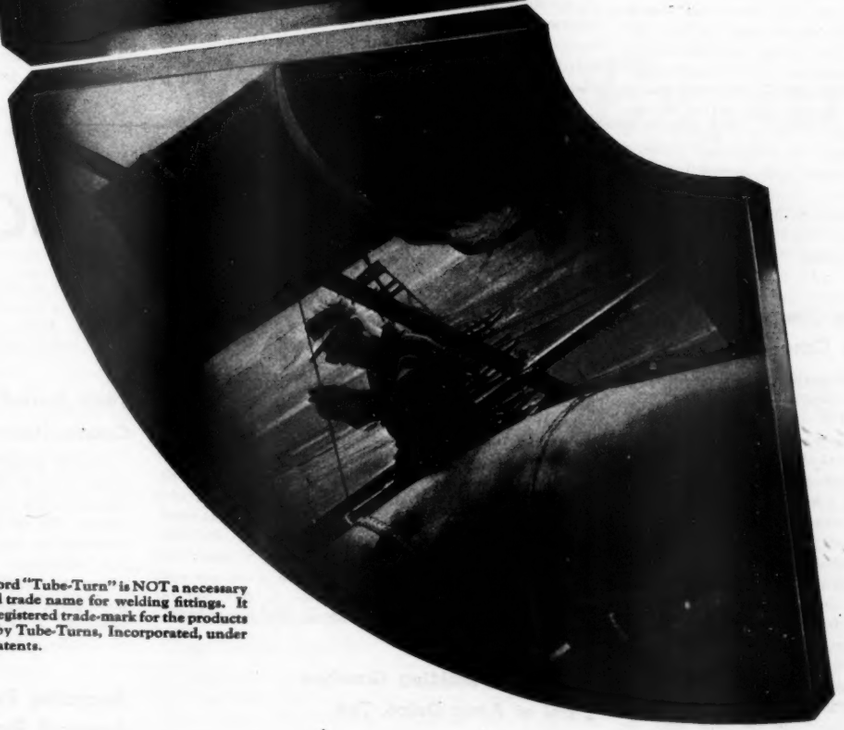
Among those who will speak are Senator Burke of Nebraska, and Senator O'Mahoney of Wyoming, chairman of the Temporary Economic (Monopoly) Committee, who will talk on "Regulation of Business Competition"; Secretary of War Woodring, speaking on "The Manufacturer and National Defense"; and former U. S. Senator Henry J. Allen of Kansas. Because of the widespread interest within industry in the new Fair Labor Standards (Wage-Hour) Act, Administrator Elmer Andrews will discuss the new law. He will be followed by a question and answer discussion of the act between Calvert Magruder, counsel for wage-hour administration, and R. S. Smethurst, associate counsel of the N.A.M. Senator Vandenberg, of Michigan, has tentatively accepted an invitation to discuss government finances and taxes.

Public Relations Work To Be More Aggressive

Recognizing the need for expansion of the work of the public relations department, the A.P.I. board of directors is reviewing plans for financing a more aggressive procedure.

Any welder knows that he can do a far better job, in far less time, when his fittings "line up" with the pipe. This isn't a mere *theoretical* advantage of Tube-Turns—it's a fact that you can prove with stop-watch and testing coupon. . . If you'll inspect any Tube-Turn that has been cut away to show its uniform wall-thickness and its true round cross-section, we believe you, too, will join the *majority* of piping experts who "insist on Tube-Turns". . . Tube-Turns, Incorporated, Louisville, Ky.

Higher standards, LOWER COSTS with TUBE-TURNS and Welding!



The word "Tube-Turn" is NOT a necessary general trade name for welding fittings. It is the registered trade-mark for the products made by Tube-Turns, Incorporated, under their patents.

Pipe Line Activity

Backfilling pipe line ditch between Manitou and Colorado Springs, Colo.

Contract Let for Carnegie Natural Gas Line

PITTSBURGH, Pa.—It was announced at the offices of the Carnegie Natural Gas Co. that contracts had been let for the building of the line from the new gas development on Chestnut Ridge in Fayette County, Pennsylvania, to connect with the company's present 12-inch line 1 mile east of Waynesburg in Greene County, Pennsylvania.

The new line will consist of 27 miles of welded 8-inch seamless pipe. The contract has been given to Rich & Co., Bradford, Pa. The line will follow a route from just east of Waynesburg across the Monongahela River below the bridge at Masontown east, just north of the glasshouse at Fairchance, and will end about 3,030 feet south of the test being drilled by New Penn Development Co. on the Indian Creek Coal & Coke Co. lease. Due to the high rock pressure on Chestnut Ridge no additional stations will be necessary and no change in the present station equipment will be made.

Samuel W. Meals, president of the Carnegie Natural Gas Co., stated the line is being laid to augment the supply of gas from its old wells which have declined.

F.P.C. Asked to Dismiss Complaints In Montana Pipe Line Case

WASHINGTON, D. C.—Montana-Dakota Utilities Co., in its answer to the joint complaint of Capital Gas Corp., Montana Eastern Pipe Line Co. and John Wight alleging inadequate and unfair prices paid for natural gas and excessive charges and impracticable conditions for transportation of gas from the Baker-Glendive field in Montana, asks that the Federal Power Commission dismiss the complaint for lack of jurisdiction and charges the complaint was filed pursuant to a plan by the three complainants to disrupt and destroy, in so far as possible, the Montana-Dakota company's business and cause it "trouble, annoyance and expense in the hope and desire that defendant will be compelled by reason of said tactics of complainants to purchase complainants' gas at a discriminatory and excessive price."

The joint complaint, filed September 7, asked that the commission fix a uniform price to be paid producers for gas in the Baker-Glendive field; that the Montana-Dakota company be required to accept and transport gas through its pipe lines in interstate commerce at reasonable rates; that a hearing be held by the commission in Billings, Montana; and that complainants be given such other relief as may be just.

In conformity with the unit plan of development authorized by the act of February 25, 1920, and a stipulation between the company and the secretary of the interior dated May 16, 1934, Montana-Dakota Utilities Co. says it is purchasing all gas produced, including gas produced or allocated to the complainants' acreage, in accordance with valid and existing purchase contracts; and the gas is being purchased without discrimination and at prices approved by the secretary of the interior. Determination of whether or not it has violated the act of 1920 rests entirely with the Interior Department, the company contends, and not with the Federal Power Commission.

The unit plan of development governing gas production from the Baker-Glendive field, formulated in conjunction with the U. S. Geological Survey and the Interior Department, provides that the production area be divided in eight divisions or units, based largely upon existing reserves and geological conditions. The complainants as participants in this unit plan agreed, it is alleged, to the designation of Montana-Dakota Co. as sole operator of pipe lines in this field.

Montana-Dakota company alleges that the original purpose of the complainants in acquiring leases and permits in the Baker-Glendive field was to control a supply of gas in connection with a plan for construction of a pipe line; that it was only after they found it impossible to promote this plan that the complainants made any demand upon the defendants to transport gas through its pipe line; that complainants have no facilities for delivering gas to said line or receiving same, and no bona fide customers to whom it could be sold; and that their real purpose is to compel the Montana-Dakota company to purchase gas from them at a higher price than is now being paid at a rate that would be excessive and would discriminate in favor of the complainants.

The Montana-Dakota company, in its answer, alleges threats of "guerilla warfare", to harass the company; and reviews the complaints filed by the complainants with the Interior Department, and the actions brought in the U. S. District Court of Montana. No final decision has been filed by the secretary of the interior on the reasonableness of the company's tariffs, the answer states, due to the pendency of the action brought in the federal court in Montana by Montana Eastern Pipe Line Co. against the defendant asking for a mandatory injunction compelling the Montana-Dakota company to transport Montana Eastern Co.'s gas at rates as determined by the court.

Natural Gas Pipe Line and Texoma Challenge Jurisdiction of F.P.C.

WASHINGTON, D. C.—The Federal Power Commission has made public the answer of the Natural Gas Pipe Line Co. of America and Texoma Natural Gas Co. to a petition filed with the commission by the Illinois Commerce Commission asking that the two companies be made to show cause why rates charged by them for natural gas to utilities in Illinois should not be reduced.

"The answer of these two companies marks the first real challenge to the commission's powers under the Natural Gas Act," said Acting Chairman Clyde L. Seavey, "and, while the answer is presumably directed solely to the petition of the Illinois Commerce Commission, it can also be interpreted as a challenge to the commission's power to conduct its investigation in-

Natural Gasoline

Two Companies Receive A.P.I. Natural Gasoline Safety Awards

Warren Petroleum Corp., Tulsa, and Standard Oil Co. of Louisiana, Baton Rouge, were the two manufacturers of natural gasoline to receive accident prevention awards at the annual meeting of the American Petroleum Institute at Chicago last week. H. W. Harts, general superintendent of the Warren plants, says that there were no off-time accidents in any of the company's plants during 1937; this record is a result of a continuous safety program. It includes periodical meetings at which safety practices are discussed, and first-aid lessons are given. At the Monument, N. Mex., and Galva, Kans., plants the employes have a 100 per cent record for the completion of courses in first aid for accident prevention conducted by the Bureau of Mines.

Henderson Building Gasoline Plant at Agua Dulce, Tex.

At Agua Dulce, Neuces County, Southwest Texas, F. C. Henderson, New York, expects to complete in 60 days a gasoline plant to cost $375,000, according to a report current in the Mid-Continent. Gas will be compressed under pressure of 1,200 pounds instead of the customary 400 pounds.

After gasoline is extracted, the gas will be forced back into oil sand to retain pressure. Capacity of the plant will be 60,000,000 feet per day and gasoline production is estimated at 48,000 gallons. J. Wood Glass, Nowata, Okla., is associated with Henderson in the Agua Dulce enterprise.

Tests Started on Shelby County Recycling Plant

FORT WORTH, Tex.—Initial testing operations are under way at Portex Oil Co.'s recycling plant in the Joaquin area of Shelby County where the firm is to handle the output of three Glenrose gas producers. Hydrostatic tests are now being made on the lines and equipment, after which the company plans to place the plant in operation. Officials of the company have announced that the plant, now capable of handling 20,000,000 feet of gas daily, will be increased to a daily capacity of 40,000,000 feet.

Recycling Permit Granted Roeser & Pendleton

AUSTIN, Tex.—Permission to recycle gas in the Cayuga field of East Texas was granted Roeser & Pendleton, Inc., of Fort Worth by the Railroad Commission last week. The company will take gas from the Trinity formation, process it for its natural gasoline content, and then return the residue to the Woodbine horizon.

stituted upon its own motion for the purpose of determining the reasonableness of the rates of these two companies."

The two companies hold in their answer that the commission's regulatory powers under the Natural Gas Act conferring jurisdiction over the rates at which natural gas is sold or transported in interstate commerce are null, void and unenforcible against them because the inevitable operation of such regulatory powers will deprive them of their property and liberty of contract without due process of law, in violation of the Fifth Amendment to the Constitution. Their challenge is based on the contention that their business is of a strictly private character and is not affected with a public interest in the sense that Congress would have jurisdiction, power or authority to enact legislation purporting to authorize the Federal Power Commission to regulate the charges or prices for which the companies are selling natural gas.

The commission launched its investigation into the rates of the two companies following receipt of a petition by the Illinois Commerce Commission alleging that the rates of the Natural Gas Pipe Line Co. of America to Chicago District Pipe Line Co. and other Illinois utilities are unjust and unreasonable. More than 92 per cent of the gas sold by Natural Gas Pipe Line is sold in Illinois, and substantially 90 per cent is sold to the Chicago District company, the petition continued, which in turn sells the gas to Peoples Gas Light & Coke Co., Public Service Co. of Northern Illinois, and Western United Gas & Electric Co. at rates based substantially upon the price Chicago District Pipe Line pays for the gas. Peoples Gas Light & Coke Co. renders gas service to over 800,000 domestic and other consumers in Chicago, the petition stated, and the Illinois regulatory body asked that the Federal Power Commission enter an order directing the two defendant companies to appear and show cause why their rates in effect in Illinois should not be reduced. Both the petition of the Illinois commission and the Federal Power Commission's order instituting investigation stated that the two companies are under substantially similar common control and ownership, and are in all substantial respects operated as a single enterprise for the production, gathering, transportation, and sale of natural gas.

The answer denies that the net earnings of the two companies, after an annual amortization allowance based on an estimated life of 20 years for the property, which was determined as reasonable by the Illinois commission in an order issued in 1933, represent for the period of operation up to December 31, 1937, a return of approximately 8.2 per cent upon the average gross investment in the property plus an allowance of $1,000,000 determined by the Illinois commission as reasonable for working capital. The companies also deny that their earnings on the same basis for the year 1937 approximate 13.4 per cent. The answer states that earnings in 1937 probably represent the highest level of earnings during the entire life of the pipe line project and adds that during 1938 the net earnings of the two companies have decreased by substantial amounts compared with 1936 and 1937. Stating that the changing physical conditions obtaining in the field or reservoir in Texas where their leases are situated and the deterioration from aging and wear and tear on their physical properties during the remaining years through which their enterprise will continue in operation will inevitably increase the expenses and cost to them of producing, transporting, and marketing natural gas. the answer maintains that it necessarily follows that during these remaining years their net earnings will be substantially and progressively reduced.

Natural Gas

Federal Power Commission Asking East Ohio Inquiry

WASHINGTON, D. C.—The Federal Power Commission has received an amendment to the petition of the City of Cleveland, Ohio, which asked the commission to investigate the cost of transportation of natural gas by East Ohio Gas Co. from the Ohio River to the city gate of Cleveland and to adopt an order directing the East Ohio company to file an inventory of its property devoted in whole or in part to the transportation of natural gas in interstate commerce, together with a statement of the original cost of such property.

The amendment tenders to the Federal Power Commission extensive records relating to the cost of transportation of natural gas purchased by the East Ohio company from Hope Natural Gas Co., an affiliate, and also tenders to the commission free of charge the services of the firm of Alvord, Burdick and Howson, Chicago, Ill., and the firm of Clinton H. Montgomery & Co., Kansas City, Mo., both of which are under contract to the city, in aid of the investigation the city seeks.

The city's action is based on a contention that its city council is a "State Commission" within the meaning of the Natural Gas Act, and that Section 17(b) of that act authorizes the Federal Power Commission to avail itself of such cooperation, services, records, and facilities as may be afforded by any state commission.

Cleveland's petition holds that a determination of the cost of transporting interstate natural gas purchased by the East Ohio company from the Hope company would be of assistance to the Federal Power Commission in its investigation instituted October 14, and should also be of assistance in the cases of Cleveland and other Ohio municipalities pending before the Ohio Public Utilities Commission.

Montana-Dakota Co. Files Application for Imports

WASHINGTON, D. C.—The Federal Power Commission has received an application filed under the Natural Gas Act seeking authority to import natural gas into the United States. The application was filed by Montana-Dakota Utilities Co., Minneapolis, and asks authority to import natural gas from Canada into Montana.

The gas is being exported by Range Oil & Gas Co., Ltd., a Canadian corporation, from the Rogers Imperial dome, in Alberta, Canada, under licenses issued by the Department of Trade and Commerce for the Dominion, and is being purchased by the applicant in accordance with an agreement entered into with the Canadian corporation in 1930. The licenses permit a maximum exportation of 100,000,000 feet per day. The gas is gathered at the field through Almont Pipeline Co., Ltd., a wholly-owned subsidiary of the applicant, and transported to the International Boundary, whence it is taken by the applicant into its main line at Telstad, Mont., for sale in Great Falls, Mont., and vicinity. The authorization sought is held to be consistent with the public interest in that the applicant's gas supply within the United States will be conserved and an adequate supply of gas for its customers will be assured.

Calgary Gas Contract

CALGARY, Alberta.—J. H. McLeod, president of Royalite Oil Co., has announced that in future the company will buy gas from independent operators up to their allowables, to supply the Canadian Western Natural Gas, Light, Heat & Power Co. system. Formerly the entire supply for Canadian Western was furnished by Royalite under an exclusive contract made when the first Madison limestone production was developed in Turner Valley. The new arrangement will enable all gas-naphtha operators to share in existing gas markets.

N. Y.-Penna. Gas Fields

COUDERSPORT, Pa., Nov. 21.—The best completion on record for the Willing Township, Allegany County, New York, Oriskany sand gas field was brought in during the past week when the Belmont Quadrangle Drilling Co.'s well on the G. Lampe farm was brought in flowing an estimated 25,000,000 feet per day. It was one of two completions for the week, the other being a dry hole.

The Belmont well topped the Oriskany sand at 4,935 feet and encountered the flow of gas at the top of the sand. It found the Onondaga at 4,892 feet. The elevation of this well was 2,229 feet, making the subsea depth of the Oriskany sand 2,706 feet, almost identical with that of the Cunningham well on the William Shear farm, the last previous successful completion in this area.

Refinery Expansion

Glacier Production Co. Plans Cut Bank Refinery

Surveys are being made in connection with plans for constructing a refinery for the Glacier Production Co. at Cut Bank, Mont.

Barnsdall Operating Rebuilt Plant Near Odessa, Tex.

FORT WORTH, Tex.—Rebuilding of Barnsdall Oil Co.'s natural gasoline plant in the Foster field, near Odessa, Tex., has been practically completed and the plant is now in operation. Capacity of the plant, recently damaged by fire resulting from an explosion, has been increased through the installation of two 230-hp. gas engine driven compressors and the erection of an additional stabilizing tower.

Universal-Mid-Continent Suit Over Seven Patents

CHICAGO.—Universal Oil Products Co. has brought suit in the U. S. District Court for the district of Delaware, against Mid-Continent Petroleum Corp., charging infringement of seven patents owned by Universal, and asking for an injunction and damages.

In a suit filed August 4, 1927, Universal sought damages for the infringement of five patents, two of which are included in the present suit. Just as this suit was about to come to trial a settlement was made out of court.

Mid-Continent at that time signed a license agreement with Universal, effective January 1, 1936, paid a substantial sum to cover past infringement and granted rights to Universal in some 20 Mid-Continent patents.

Universal then withdrew the pending suit.

The present suit was filed October 14, 1938, after Mid-Continent had cancelled its license agreement and continued to operate the process.

Mid-West Refineries to Install Cracking Unit

B. J. Skinner, president of Mid-West Refineries, Inc., Alma, Mich., has just signed a license agreement with Universal Oil Products Co. Construction of a Dubbs cracking unit in the Mid-West plant will begin shortly. It will be a two-coil selective unit, designed to crack 1,000 bbls. a day of 24-26 topped crude from the Porter, Michigan, field, and simultaneously to reform 190 to 200 bbls. a day of straightrun Michigan gasoline. The unit is to be designed by Universal engineers and will be built by Frick-Reid Supply Corp., under Universal supervision.

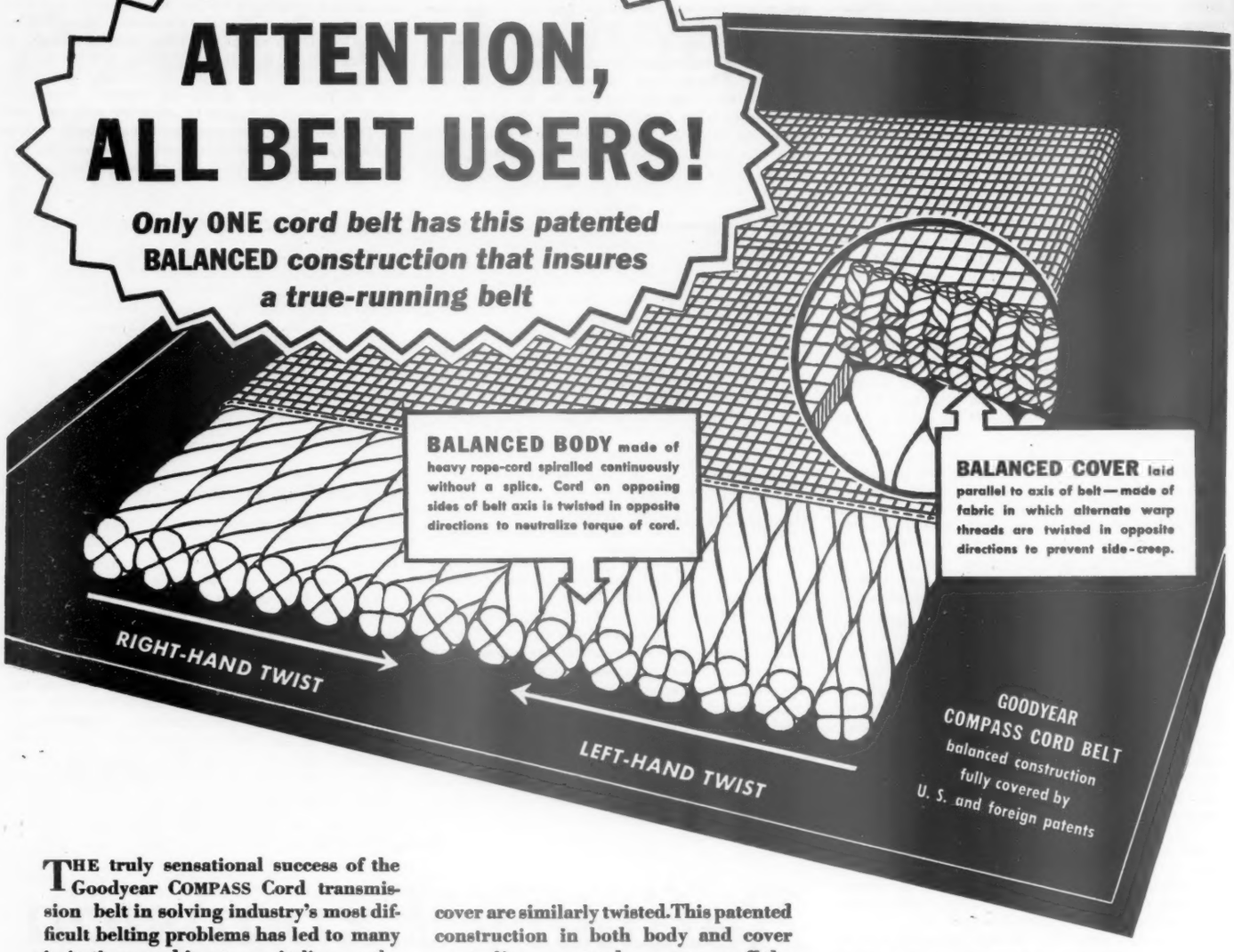
For several years Mid-West has operated a skimming plant of 3,000 bbls. a day crude capacity.

Illinois Refinery Ready to Start After Rebuilding

ST. ELMO, Ill.—The Allied Refining Co. plant, destroyed by fire in August, has been rebuilt and is to start operations next week. It has a skimming capacity of 3,000 bbls. a day.

ATTENTION, ALL BELT USERS!

Only* ONE *cord belt has this patented* BALANCED *construction that insures a true-running belt


BALANCED BODY made of heavy rope-cord spiralled continuously without a splice. Cord on opposing sides of belt axis is twisted in opposite directions to neutralize torque of cord.
BALANCED COVER laid parallel to axis of belt—made of fabric in which alternate warp threads are twisted in opposite directions to prevent side-creep.
RIGHT-HAND TWIST
LEFT-HAND TWIST
GOODYEAR COMPASS CORD BELT
balanced construction fully covered by U. S. and foreign patents

THE truly sensational success of the Goodyear COMPASS Cord transmission belt in solving industry's most difficult belting problems has led to many imitations seeking to capitalize on the magic word "cord."

But what makes the Goodyear COMPASS the truest-running, most nearly stretchless belt on the market—what gives it such exceptionally high flex-life and long wear—is a fully patented method of cord construction no other belt manufacturer can employ!

The Goodyear COMPASS Cord is a modernized flat belt version of the ancient rope drive. With rope drives, as you know, it is necessary to use grooved pulleys to keep the ropes from running off due to their torque or twisting action.

In the COMPASS this torque is balanced by twisting the ropes, or cords, on opposing sides of the belt axis in opposite directions. Alternate warp threads in the fabric cover are similarly twisted. This patented construction in both body and cover neutralizes any tendency to run off the pulley with an equal pull toward the opposite side, insuring a belt that runs true.

More than this, it permits Goodyear to use larger, stronger cord, eliminating fabric plies entirely in the carcass, and making a thinner, stronger belt with far higher flex-life and longer service-life.

The best proof of this is the remarkable performance of COMPASS belts on industry's hardest drives. From two to five times longer life with practically no stretch is typical. So don't be deceived by the word "cord." The Goodyear COMPASS Cord belt is the only belt in the world with patented balanced cord construction that insures true-running, high flex-life, low stretch and maximum wear. To test COMPASS superiority for yourself, call the nearest Goodyear Mechanical Rubber Goods Distributor.

COMPARE THE PERFORMANCE

Location of well	Best previous belt life	Goodyear COMPASS Cord
Oklahoma	8 months	23 months—still in use
Arkansas	5 months	35 months—still in use
Oklahoma	8 months	18 months—still in use
Oklahoma	3 months	24 months
Pennsylvania	8 months	62 months—still in use
Oklahoma	9 months	15 months—still in use

BELTS
MOLDED GOODS
HOSE
PACKING
Made by the makers of Goodyear Tires

THE GREATEST NAME IN RUBBER

GOODYEAR

ENGINEERING and OPERATING

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CATALYTIC PROCESSING OF PETROLEUM BY THE HOUDRY PROCESS
By Eugene Houdry, Wilbur F. Burt, A. E. Pew, Jr., W. A. Peters, Jr. . . . *Page 40*

The Houdry process involves complete catalytic operations for production of high-octane motor fuels and aviation gasolines by cracking gas oils, residuum, or crude with optional fuel-oil production.

SAFETY—TEMPORARY GUARD FOR PUMP BELTS . . . . . *Page 48*

Moving machinery is always a source of danger and rotary operators are careful about guarding drive belts and pulleys. An Illinois drilling contractor ordered fabricated steel guards for his new power-driven mud pump but while waiting for them to be made he had his men install a temporary wooden guard.

CHEMISTRY OF ASPHALT—*By George W. Eckert* . . . . . *Page 52*

Since the chemical and physical properties of asphalt affect the conditions of asphaltic pavements, a review of these properties is presented by a chemist who has studied highway problems.

PURE OIL COMPANY USES TAPERED SEATS FOR CASING ILLINOIS WELLS
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Casing practices followed in the completion of wells drilled by rotary and cable tools are described in connection with an account of the experience of one company in setting casing with tapered seats.

MODERN REPRESSURING PLANT IN TITUSVILLE, PENNSYLVANIA, DISTRICT
By J. P. O'Donnell . . . . . *Page 64*

The features incorporated in the construction of a recent repressuring plant in one of the old Pennsylvania fields exemplify what is done in the design of a project for this type of secondary recovery.

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The Houdry Process

By EUGENE HOUDRY, Houdry Process Corp., Wilmington, Del.; WILBUR F. BURT, Socony-Vacuum Oil Co., Inc., New York; A. E. PEW, JR., Sun Oil Co., Philadelphia, Pa.; and W. A. PETERS, JR., E. B. Badger & Sons, Boston.*

The purpose of this paper is to present a general description of the present status of the Houdry catalytic processes in such detail as properly may be released at this time and within the space limitations required from a practical standpoint for presentation at this meeting. Many specific engineering and technical details purposely are omitted to meet these limiting considerations.

A. General Facts

The processes listed hereinafter constitute subject matter of 96 U. S. patents, not including corresponding foreign patents and pending U. S. and foreign applications (see appendix for listing).

The processes available under the Houdry Process Corp. patents and development may be summarized as follows:

1. Catalytic cracking of a crude or any distillate fraction or residuum thereof, excepting straightrun gasoline, for the production of gasoline, gas oils, furnace oils, with or without the production of tar or heavy liquid products.

2. Catalytic viscosity breaking in liquid phase by which residues or tars may be reduced in viscosity to meet fuel specifications, without substantial production of gasoline.

3. Catalytic treatment of gasoline from catalytic or thermal cracking.

(*a*) Liquid-phase catalytic treatment of aviation gasoline from catalytic cracking.

4. Catalytic desulfurization of gases from cracking or topping operations.

5. Catalytic polymerization in liquid phase of butenes.

6. Production of light-gravity gas oils for furnace-oil requirements or Diesel oils by catalytic cracking, charging heavier-gravity gas oils or residuums.

The above operations were developed by Socony-Vacuum Oil Co., Inc., and the Sun Oil Co. in conjunction with the Houdry Process Corp. Houdry Process Corp. is owned jointly by Socony-Vacuum Oil Co., Inc., the Sun Oil Co., and Eugene Houdry and his associates.

B. Extent of Use

There are in operation at the present time three units: (1) A gas-oil catalytic cracker of 2,000-bbl.-per-day capacity at the Paulsboro refinery of the Socony-Vacuum Oil Co., Inc.; (2) a 3,000-bbl.-per-day unit in a Socony European refinery; and (3) a 15,000-bbl. unit charging residuum at the Sun Oil Co.'s Marcus Hook refinery. At the present time the Sun Oil Co. has under construction two large units, and the Socony-Vacuum Oil Co., Inc., an additional eight units. Units under construction will represent a $24,000,000 investment on the part of the Socony-Vacuum Oil Co., Inc., and $11,000,000 by the Sun Oil Co. The smallest unit under construction charges 10,000 bbls. per day to the catalyst, and the largest 18,000 bbls. per day. Completion dates are scheduled for the mid-year of 1939. Some of these units are combination units, with crude capacities as high as 28,000 bbls. per day.

*Authors' title: Catalytic Processing of Petroleum Hydrocarbons by the Houdry Process.

Description of Processes

Cracking.

Of the processes listed previously the most important is the cracking of crudes and fractions or residues thereof.

Figure 1 is a flow sheet showing the general steps used in processing a crude oil running to fuel oil, with one pass through the catalyst, and with the removal of straightrun products optional. The dotted line indicates the flow if desired to run to "no residuum." As shown in the flow diagram, crude oil is pumped through heat exchangers, wherein it is preheated by the products from the catalytic cases; thence to a primary flash fractionating tower, wherein the desired straightrun products are fractionated and removed. The residue from the flash tower is pumped through a still, heated to approximately 880° F.—depending on stock—thence into a vaporizer. Tar bottoms are removed as a liquid, and the vaporized fractions of the charge pass to the catalyst chambers. From the catalyst chambers the vapors pass through the crude-oil exchanger into the final fractionating tower, wherein gasoline, furnace oil, and heavy gas oil are separated—the latter two being combined, if desired, for recharge to catalytic- or thermal-cracking operations. If gas oil is charged, the flash tower and the vaporizer are eliminated—the charge being pumped through exchangers to the still, and thence direct to the catalyst. If a residue is to be charged, the primary flash fractionating tower is eliminated—the charge passing direct to the still, and thence to the vaporizer for tar separation. To eliminate fuel production, the charge from the still is charged to a vaporizer—wherein, through a special catalytic mass, the entire charge is vaporized and passed to the catalyst. In special cases it is advisable to charge the entire crude to the catalyst without removal of straightrun products. The flow arrangement for this operation is the same as described for residues. Many variations in flow are possible, but the above are the principal ones.

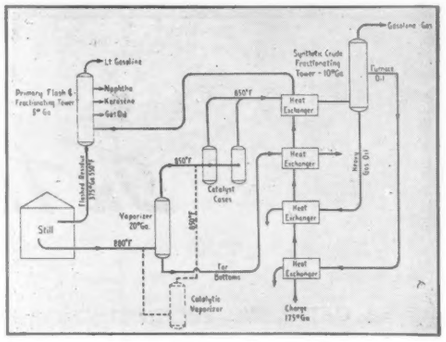

Fig. 1—General flow diagram showing combination crude topping and catalytic-cracking operation

In general, the yield of gasoline will be about 45 per cent, based on charge to catalyst, from a single-pass operation on any stock, whether gas oil or residue. The octane number of the gasoline produced from any charging stock heavier than gasoline is from 77 to 81 for 437 endpoint gasoline. Octane numbers by the research method will run 7 to 10 points above these figures. The octane value does not change to any appreciable extent

***A.P.I.*—Unusual interest was shown during the Friday refinery group session of the American Petroleum Institute in Chicago toward the description of the Houdry catalytic cracking process. The paper, as read, is published here and discusses application of the process for the liquid-phase viscosity reduction of tars, polymerization of butenes, vapor-phase and liquid-phase treatment of motor and aviation fuels and the desulfurization of gases. The first published description of a semicommercial Houdry unit appeared exclusively in The Oil and Gas Journal October 19, 1933, starting Page 12.**

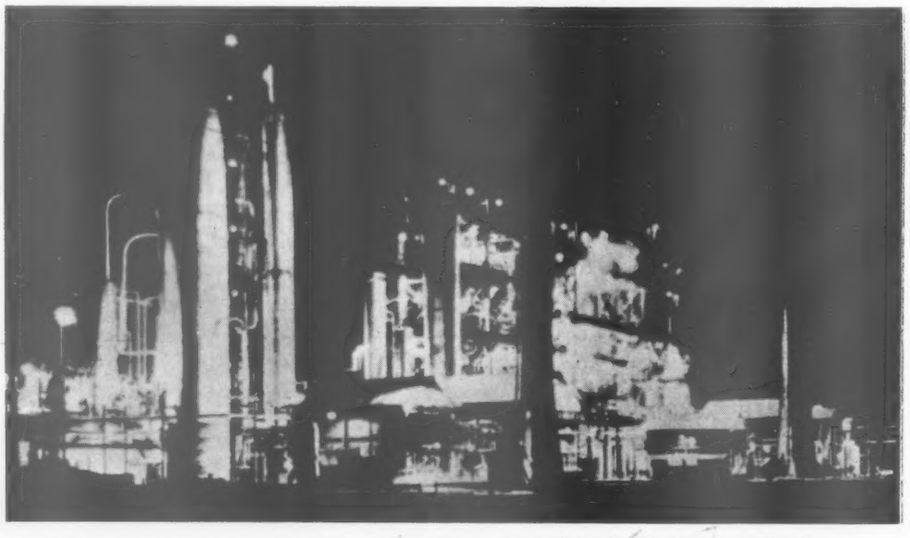

Fig. 2—Houdry unit in plant of Socony-Vacuum Oil Co., Inc.—night view

with boiling points, and these values are obtained regardless of type of crude. Lead susceptibilities and blending values are high. The blending value of Houdry with straightrun gasoline is usually 4 to 10 points higher than the actual octane number. Unless otherwise noted, all references to octane value are on the basis of A.S.T.M. motor-method rating.

Catalytically-produced gas oils again can be cracked by the catalytic operation; and the yield, while lower than obtained on virgin gas oil, is higher, pass by pass, than usually is obtained in a thermal unit. Catalytically-produced gas oils make excellent charging stocks for thermal units. Tests indicate that yields by thermal cracking of gas oils produced by one-pass catalytic conversion will be at least as high as those shown in Table 1. Octane numbers on the gasoline produced will be somewhat higher than on gasolines produced by thermal cracking of similar virgin gas oils.

TABLE 1—YIELD BY THERMAL CRACKING OF HOUDRY GAS OIL

Gravity of catalytic gas oil (°A.P.I.)	Thermal gasoline yields (per cent)	8°-A.P.I. fuel (per cent)
20	50	38
27	54	34
34	58	30

Table 2 shows yields and product characteristics obtained from different residuum and crude-oil charging stocks when run one pass and producing residuum fuel.

An outstanding feature of these catalytic operations is their ability to produce aviation gasoline. It is believed by the authors that the manufacture of aviation gasoline by this process (7,000,000 gallons in 1937-1938) represents the first commercial application of a synthetic process for aviation-fuel production. This does not refer to synthetic antiknock components such as isooctane and isopropyl ether, as such materials are blending agents, and do not constitute in themselves complete aviation fuel. Houdry aviation gasoline, when sweetened, acid-treated, and redistilled, gives a product meeting acid-heat specification, and gum and oxidation tests. Houdry catalytic treating is applicable for the same purpose. Finished Houdry aviation gasoline will be from 76 to 78 A.S.T.M. octane number clear grade, or approximately 87, 90, 92 octane number with 1.8 ml., 3 ml., 4 ml. of tetraethyl lead per gallon, respectively. When used for blending with isopentane, isooctane, and similar antiknock agents, 100-octane-grade fuel, after lead addition, is produced. For example, a typical 100-octane, Army-method (96-octane, motor method) blend, actually marketed, consists of about 25 per cent isooctane, 75 per cent Houdry aviation gasoline, and 2.75 ml. of lead. This blend indicates that only one-half as much isooctane is required as with natural aviation gasoline from selected crude.

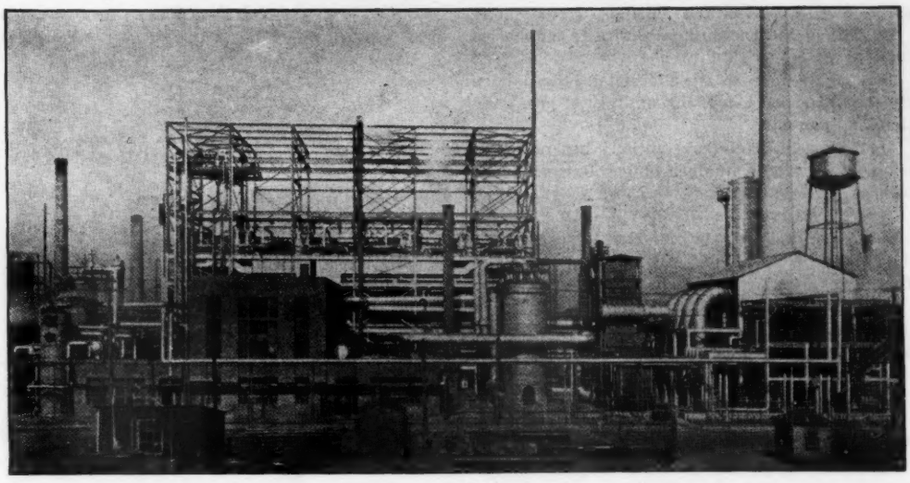

Fig. 3—Front view of Houdry unit in Marcus Hook refinery of Sun Oil Co.

Table 3 shows typical properties of Houdry aviation gasolines.

Table 4 shows yields and typical properties of products from Houdry conversion of gas oils.

The so-called "no-residuum" operation flow is shown by dotted lines in Figure 1, the catalytic vaporizer replacing the tar-separator vaporizer. In this operation the residual carbon is deposited on the catalyst, which is regenerated by burning off the deposited carbon with air. Most of the heat value of this carbon is recovered—part of this heat being used to supply heat of reaction in the conversion operation, and part being recovered as steam and power. The carbon deposit in the catalytic vaporizer will vary from 1.5 per cent by weight, obtained when charging 34.7 per cent reduced Lafitte crude, to 7 per cent by weight when charging a 17.3° A.P.I. Venezuela (Lagunillas) crude. The vapors leaving the catalytic vaporizer and entering the catalytic-cracking units represent 99.4 per cent by liquid volume of the charge to the vaporizer on the Lafitte charge, and 94.6 per cent on the Lagunillas. The combined catalytic operation of vaporization and cracking is noteworthy on account of the high liquid recovery, low coke make, substantial absence of low-grade naphtha on the vaporizing side, and practically complete volumetric conversion of the heavy components of the charge to cracking catalyst into gasoline and gas oils. Table 5 shows yields and general tests from runs by this method.

Table 6 shows results obtained by recycling.

Attention is called to the important appreciation of final products obtainable by the Houdry Process Corp. process as compared to thermal processes. The outstanding advantages of the Houdry process are:

1. High yield of high-octane gasoline in one pass.

2. Production of light-gravity low-boiling-point gas oil as cycle stock or as furnace oil in place of fuel oil.

3. Low gas yields.

4. High liquid recovery.

5. Flexibility in meeting seasonal variation in demand of furnace oil, fuel oil, and gasoline.

6. Availability of the process as a source of

TABLE 2—YIELDS AND PRODUCT CHARACTERISTICS BY RUNNING CRUDES AND RESIDUUMS TO FUELS—ONE PASS

	East Texas		Grade "B" coastal		36°-A.P.I. Mid-Continent		West Texas		Mount Pleasant		La-gunillas
Type crude—	Topped of straightrun naphtha	Topped of naphtha, kerosene, and furnace oil	Topped of naphtha	Running entire crude	Topped of naphtha	Topped of naphtha and kerosene	Topped of naphtha	Topped of naphtha and and gas oil	Topped of naphtha	Topped of naphtha, kerosene, and gas oil	Running entire crude
Charge to plant, per cent crude	58.5	38.0	75.6	100.0	66.7	52.4	68.5	35.0	62.0	43.3	100
Sulfur content of charge to plant, per cent	0.45	0.55	0.28	0.17	0.48	0.61	1.9	2.20	0.65	0.66	2.14
Tar:											
Per cent volume of crude	8.0	8.0	6.0	6.0	8.4	8.4	8.7	8.50	2.7	8.3	35.4
A.P.I. gravity, deg.	12.6	12.6	12.8	12.8	13.3	13.3	7.4	8.5	11.0	14.8	4.2
Charge to catalyst:											
Per cent volume of crude	50.5	30.0	69.6	94.0	58.3	44.0	59.8	26.5	59.3	35.0	64.6
A.P.I. gravity, deg.	29.0	23.9	26.8	31.9	30.0	27.7	27.0	20.5	31.5	27.2	25.2
Initial boiling point, °F.	452	508	415	120	420	538	430	605	415	574	182
50 per cent point, °F.	690	740	615	560	650	711	685	717	625	712	672
Endpoint, °F.	760+	760+	760+	760+	760+	760+	760+	760+	760+	760+	760+
Dry gas, per cent by weight of charge to catalyst	4.5	5.1	7.0	3.9	4.0	5.4	5.7	3.1	5.6	5.3	3.8
Catalyst deposit, per cent by weight of charge to catalyst	5.3	5.4	4.4	3.4	3.9	3.5	5.3	4.5	5.2	4.9	4.5
Gasoline:											
Per cent by volume of charge to catalyst	44.0	42.6	47.2	60.6	41.9	44.1	45.3	39.1	40.2	47.0	44.5
A.P.I. gravity, deg.	64.6	61.7	58.9	57.0	63.5	60.8	62.4	59.8	61.1	63.1	61.5
50 per cent point, °F.	229	250	264	270	251	247	258	253	242	232	254
90 per cent point, °F.	351	372	390	384	392	366	384	348	385	363	356
Endpoint, °F.	401	412	429	425	440	413	424	397	424	416	396
Reid vapor pressure, lbs. per sq. in.	11.0	10.0	11.0	11.0	11.0	11.0	11.0	10.0	11.0	11.0	10.0
Sulfur content, per cent	0.03	0.05	0.02	0.02	0.06	0.06	0.14	0.23	0.03	0.04	0.13
Copper-dish gum, mg. per 100 ml.	7	4	5	4	6	19	34	22	6	8	10
Octane No., A.S.T.M. motor method	78.8	78.8	78.6	73.8	76.8	78.4	77.6	81.0	77.0	79.4	77.7
Catalytic gas oil:											
Per cent by volume of charge to catalyst	54.4	56.4	49.2	38.8	57.7	54.9	51.7	61.2	55.7	51.3	54.7
A.P.I. gravity, deg.	29.5	26.9	26.0	26.3	30.8	28.6	26.2	20.2	33.1	26.5	22.7
Initial boiling point, °F.	404	458	403	405	447	436	438	440	415	462	406
50 per cent point, °F.	554	566	517	517	546	579	534	664	531	588	534
Pourpoint, °F.	+45	+50	—10	—10	+30	+45	+10	+45	+10	+35	—(—60)
Viscosity (Saybolt Universal) at 100° F., sec.	39	43	36	36	39	42	38	58	36	43	39
Sulfur content, per cent	0.24	0.31	0.11	0.11	0.20	0.21	1.06	1.04	0.14	0.29	1.17
Aniline point, °F.	134	142	125	127	140	140	134	130	135	124	95.7
Liquid recovery, per cent by volume of charge to catalyst	98.4	99.0	96.4	99.4	99.6	99.0	97.0	100.3	95.9	98.3	99.2
32°-A.P.I.-gravity furnace oil in catalytic gas oil, per cent	42.4	...	...	...	...	...	...	9.8	100	13.3	35.6

aviation gasolines without change in equipment.

7. In general, the authors desire to emphasize that:

(*a*) Heavy fuel oils are eliminated—the Houdry finished products consisting entirely of gas, gasoline, and gas oils.

(*b*) Type of crude substantially has no effect on yield or octane number of gasoline produced by the catalytic cracking.

(*c*) On all crudes so far tested, sulfur content of gasoline produced by catalytic cracking and treating is below 0.1 per cent.

Treating.

Houdry Process Corp. has available two treating operations. One is a vapor-phase catalytic process for treating catalytic or thermal gasoline; the other is a liquid-phase catalytic process for treating catalytic aviation gasoline.

The vapor-phase operation produces—with no loss of octane number—a gasoline unusually low in gum, sweet to the doctor test, of high stability, low in sulfur content, and with excellent color and odor. Catalytic untreated gasoline has a low gum content, induction periods of 10 hours or more, a low sulfur content and, in most instances, its color is sufficiently good to permit of dyeing. The untreated gasoline will not pass the doctor or corrosion test; but, after a caustic-soda wash, will pass the corrosion test.

The untreated catalytic gasoline of 424 endpoint, from 68.5 per cent reduced West Texas crude, has a sulfur content of only 0.14 per cent; whereas 300-endpoint untreated straightrun gasoline from the same crude has a sulfur content of 0.18 per cent. The vapor-phase treatment completely removes mercaptans and hydrogen sulfide and at least 30 per cent of the original total sulfur. The vapor-phase operation may be used effectively on thermally-cracked gasolines. Operating costs vary from 2.5 to 4.5 cents per barrel charged, and the yield is normally in excess of 99 per cent from catalytic gasoline. Two plants with charging capacity of 22,000 bbls. each per day are being erected. A 1,500-bbl.-per-day unit has been operated successfully for one year on catalytic gasolines from various charging stocks, including heavy distillates of Iraq crude.

The process consists of passing the vaporized gasoline at a temperature of about 600° F. and at pressures of from 15 to 100 pounds per square inch gauge, over a molded solid catalyst of acid-treated clays containing oxides of the heavy metals, manganese, and nickel. The catalyst is regenerated in place as required, usual operating periods being from four to six hours; two cases are used, thus giving a continuous operation. The quality of products obtained by catalytic vapor-phase treatment is shown in Table 7.

Liquid-phase treatment of aviation gasoline by catalysts results in a product having acid-heat numbers of approximately 10, bromine numbers of 3 or lower, and other characteristics such as sulfur, gum, stability, etc., meeting all requirements. Some results of this operation are shown in Table 3. Exceptionally high blending characteristics are obtained with isooctane and lead, as mentioned previously.

Desulfurization

Catalytic desulfurization is available for the substantially complete removal of sulfur from refinery

TABLE 3—HOUDRY CONVERSION OF GAS OIL TO AVIATION GASOLINE

Properties of Products

	Charge stock to Houdry unit	Stabilized raw aviation-gasoline distillate	Heavy naphtha fraction	Raw motor gasoline	Recycle gas-oil bottoms	Excess butanes and pentanes*
Approximate yields based on charge, per cent by volume	100.0	22	20	46	53	5 per cent on aviation gasoline and 1 per cent on motor gasoline
Gravity, °A.P.I.	29.0	63.0	36.0	53.0	27.0	
A.S.T.M. distillation, in °F.:						
Initial boiling point	395	105	300	95	418	
5 per cent point	433	130	316	125	444	
10 per cent point	450	141	320	142	450	
20 per cent point	471	154	325	176	460	
30 per cent point	488	169	333	205	468	
40 per cent point	504	185	339	230	480	
50 per cent point	521	202	346	262	492	
60 per cent point	538	215	355	292	505	
70 per cent point	559	230	364	317	521	
80 per cent point	585	244	373	344	542	
90 per cent point	637	263	384	369	581	
Endpoint	685	299	410	402	668	
Recovery, per cent	97.5	98.0	98.5	97.0	98.0	
Residue, per cent	1.5	1.0	1.0	2.0	2.0	
Loss, per cent	0.5	1.0	0.5	1.0	0.0	
Acidity of residue	....	Neutral	....	Neutral	....	
Color, Saybolt	....	30+	....	28	....	
Reid vapor pressure, lbs. per sq. in.	....	7.0	....	10.0	....	
Doctor test	....	Negative	....	Negative	....	
Acid heat, °F.	....	68	....	60	....	
Water tolerance	....	Pass	....	....	....	
Freezing point, °F.	....	Below —76	....	....	....	
Copper-dish gum, mg. per 100 ml.	....	1	....	6	....	
Copper-dish corrosion	....	Pass	....	Pass	....	
Glass-dish gum, mg. per 100 ml.	....	1	....	1	....	
Sulfur, per cent by weight	....	0.02	....	0.03	....	
British Air Ministry existent gum	....	1	....	....	....	
British Air Ministry potential gum	....	1	....	....	....	
Octane No., A.S.T.M. motor method	....	77.5	75.0	77.0	....	
After addition of tetraethyl lead: 1 ml. per gal.	....	84.0	....	82.5	....	
After addition of tetraethyl lead: 2 ml. per gal.	....	86.6	....	84.5	....	
After addition of tetraethyl lead: 3 ml. per gal.	....	88.5	....	86.0	....	
After addition of tetraethyl lead: 4 ml. per gal.	....	89.8	....	....	....	

*The yield of dry gas is 2.5 per cent by weight, and catalyst deposit 1.5 per cent by weight. In making aviation gasoline, there is an excess of about 5 per cent by volume of light ends, consisting mainly of butanes and pentanes; but in making motor gasoline of a Reid vapor pressure of 10 pounds per square inch, only about 1 per cent excess is produced.

Properties of Treated and Catalytically-Converted Aviation Gasolines

	Typical untreated catalytic stock	Commercial acid-treated and rerun	Mildly acid-treated and rerun	Houdry vapor-phase catalytic-treated	Houdry liquid-phase catalytic-treated
Yield aviation gasoline, per cent of raw stock	100	84	94	91.5	86‡
Gravity, °A.P.I.	63.0	63.0	62.8	62.2	62.5
A.S.T.M. distillation, in °F.:					
Initial boiling point	105	106	108	110	104
5 per cent point	130	138	136	134	124
10 per cent point	141	146	144	145	148
20 per cent point	154	158	157	159	164
30 per cent point	169	171	170	172	178
40 per cent point	185	186	186	186	188
50 per cent point	202	199	200	198	200
60 per cent point	215	212	213	211	214
70 per cent point	230	224	225	224	220
80 per cent point	244	237	239	238	244
90 per cent point	263	257	260	257	254
Endpoint	299	310	320	289	290
Recovery, per cent	98.0	98.0	98.0	98.0	97.0
Residue, per cent	1.0	1.2	1.0	1.0	1.0
Loss, per cent	1.0	0.8	1.0	1.0	2.0
Acidity of residue	Neutral	Neutral	Neutral	Neutral	Neutral
Color, Saybolt	30+	30+	28	30+	30
Reid vapor pressure, lbs. per sq. in.	7.0	5.9	5.5	6.6	6.2
Doctor test	Negative	Negative	Negative	Negative	Negative
Acid heat, °F.	68	14	48	21	9
Water tolerance	Pass	Pass	Pass	Pass	Pass
Freezing point, °F.	Below —76	Below —76	Below —76	Below —76	Below —76
Copper-dish gum, mg. per 100 ml.	1	1	1	Below 1	1
Copper-dish corrosion	Pass	Pass	Pass	Pass	Pass
Glass-dish gum, mg. per 100 ml.	1	Below 1	Below 1	Below 1	Nil
Sulfur, per cent by weight	0.02	0.01	0.01	0.02	0.01
British Air Ministry existent gum	1	1	1	1	....
British Air Ministry potential gum	1	1	1	1	....
U. S. Navy accelerated gum:†					
Old test, 4 hours, mg. per 100 ml.	....	2	1	2	1
New test, 5 hours, mg. per 100 ml.	....	5	1	§...	....
Octane No., A.S.T.M. motor method	77.5	78.0	77.7	79.2	77.4
After addition of tetraethyl lead: 1.0 ml. per gal.	84.0	85.0	84.6	86.0	84.7
After addition of tetraethyl lead: 2.0 ml. per gal.	86.6	88.2	87.8	88.6	87.2
After addition of tetraethyl lead: 3.0 ml. per gal.	88.5	90.7	90.0	90.6	88.8

†Old Navy test was for 4 hours at 212° F., under 100 pounds initial oxygen pressure before heating; new test is similar, but for 5 hours, and in the presence of an iron strip. ‡There is produced, in addition to the 86 per cent of aviation gasoline, 5 per cent of 77.9-octane 414° F. endpoint naphtha, and 8 per cent of 29.8°-A.P.I. gravity gas oil. §This sample showed only 2 mg. per 100 ml. of gum after 8 hours' aging in bomb without iron strip.

TABLE 6—YIELD AND PRODUCT CHARACTERISTICS OBTAINED BY RECYCLING

	Mid-Continent gas oil, 37.8 deg. A.P.I.				Mid-Continent gas oil, 17.5 per cent bottoms				38-92 per cent cut East Texas crude		
Charging stock—	Virgin stock	Second pass	Third pass	Residual gas oil	Virgin stock	Second pass	Third pass	Residual gas oil	Virgin stock	Second pass	Residual gas oil
Charge, per cent of virgin stock	100	53.0	35.3	25.2	100	46.1	33.8	26.0	100	53.9	32.7
A.P.I. gravity, deg.	37.8	35.2	33.7	32.4	17.8	24.4	22.8	21.2	27.5	29.4	22.3
Initial boiling point, °F.	416	409	432	420	550	423	422	426	440	448	440
50 per cent point, °F.	536	510	506	498	760+	576	555	532	680	576	585
90 per cent point, °F.	586	566	560	554	760+	745	712	676	760+	710	702
Endpoint, °F.	656	656	660	683	760+	760+	760+	760+	760+	760+	760+
Aniline point, °F.	179	148	134	125	....	118	100	90	....	148	124
Cumulative yield of gasoline, per cent by volume	44.7	59.5	67.2	....	47.7	54.0	62.9	....	45.5	62.3	....

gases. The process requires a higher capital investment than some others when sulfur content is below 1,500 grains per 100 cubic feet, but has comparable operating costs. For higher sulfur contents, or when complete removal is required, the authors believe it offers more advantages than any competing process, inasmuch as the costs and the operation practically are independent of the sulfur content of the gas. In general, the operation consists of heating the sulfur-bearing gas to temperatures of about 750° F. at any convenient pressure, passing the heated gas over supported nickel oxide for a period of 30 minutes or more, interrupting the flow, and regenerating under such conditions as to minimize the formation of nickel sulfate.

When coke-oven gas containing 400 grains of hydrogen sulfide and 45 grains of carbon disulfide was processed, 96.5 per cent of the carbon disulfide was removed, and simultaneously the hydrogen sulfide was reduced to less than 1 grain per 100 cubic feet. No commercial units as yet have been installed in the United States, but a pilot plant has been operated.

Catalytic Polymerization

Houdry Process Corp. has developed a selective liquid-phase catalytic-polymerization process whereby the butanes are polymerized into a product consisting of C_3, C_{12}, and gas oil. The motor gasoline has a gravity of 57 degrees A.P.I., an octane rating of 84 to 85, and a blending value as high as 136.

The operation consists, briefly, of pumping the reflux from the butane tower of a stabilization or recovery plant through a catalyst as a liquid, then fractionating out the polymer or returning it to the stabilization plant. Table 8 shows results obtained by this operation. Investment cost of a plant processing 2,000 bbls. of C_4 material containing 35 per cent C_4 unsaturates amounts to $32,000, with an additional $30,000 if fractionation of polymer is required. Yields of polymer are from 55 to 72 per cent by weight of unsaturates in one pass. Higher yields can be obtained by recycling. The polymer is an excellent base stock for hydrogenation to iso-octane.

Liquid-Phase Viscosity Breaking

Table 9 shows some results obtained by the Houdry process in the conversion of heavy-crude residues to fuel oil of lower viscosity.

General

All of the Houdry catalytic operations discussed in this paper require regeneration of the catalyst. The catalyst activity decreases during the on-stream period of the cycle due to the accumulation of carbonaceous deposits which, therefore, must be removed periodically. Operating cycles vary from 30 to 135 minutes in cracking fuels and gas oils, from 8 to 12 hours in vapor-phase treating operations, and from 6 to 12 hours in the polymerization operation. Catalytic containers are arranged so that operation is continuous, some operating while others are regenerating. Changes from case to case are controlled automatically. Heat in the products of regeneration is recovered as steam and as electric power—the latter by a heat turbine operating an electric generator. Sufficient recovery is obtained to enable the average catalytic-cracking unit to produce its own electric and steam requirements. In the case of heavy residues some surplus is obtained.

The life of the catalyst for treating apparently is unlimited, no deterioration having taken place in actual operation over a year's period. Cracking-plant operations have given practically the same yield over a period of six months. Estimates on new plans have been based on renewing the catalyst after six months, but it is expected

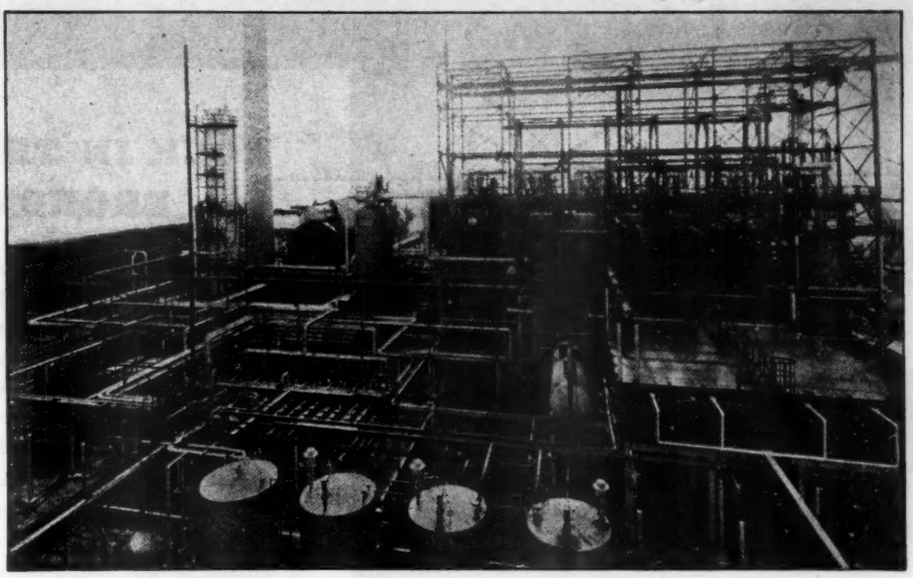

Fig. 4—Rear view of Houdry unit in Marcus Hook refinery of Sun Oil Co.

TABLE 4—YIELD AND PRODUCT CHARACTERISTICS BY RUNNING GAS OILS—ONE PASS

Type crude—	Mid-Continent gas oil	West Texas—New Mexico gas oil	East Texas gas oil	Coastal gas oil
Sulfur content of charge to plant, per cent	0.22	0.81	0.16	0.04
Charge to catalyst:				
A.P.I. gravity, deg.	37.8	30.4	34.5	30.0
Initial boiling point, °F.	416	440	420	406
50 per cent point, °F.	536	554	574	494
Endpoint, °F.	656	683	750	602
Dry gas, per cent by weight of charge to catalyst	4.3	5.2	6.1	4.9
Catalyst deposit, per cent by weight of charge to catalyst	3.3	4.0	3.2	1.0
Gasoline:				
Per cent by volume of charge to catalyst	44.7	41.0	44.4	50.3
A.P.I. gravity, deg.	64.4	60.8	62.7	56.8
50 per cent point, °F.	233	230	242	260
90 per cent point, °F.	346	354	362	382
Endpoint, °F.	398	404	402	410
Reid vapor pressure, lbs. per sq. in.	13.0	10.0	11.0	11.0
Sulfur content, per cent	0.02	0.07	0.02	0.01
Copper-dish gum, mg. per 100 ml.	3	9	4	4
Octane No., A.S.T.M. motor method	79.2	79.3	77.0	80.8
Catalytic gas oil:				
Per cent by volume of charge to catalyst	53.0	55.3	51.9	49.9
A.P.I. gravity, deg.	35.2	27.4	31.0	26.6
Initial boiling point, °F.	409	419	468	414
50 per cent point, °F.	510	516	550	480
Pourpoint, °F.	+5	—(—60)	+15	—(—60)
Viscosity (Saybolt Universal) at 100° F., sec.	36	37	36	34
Sulfur content, per cent	0.07	0.80	0.10	0.10
Aniline point, °F.	148	116	142	74
Liquid recovery, per cent by volume of charge of catalyst	97.7	96.3	96.3	100.2
32°-A.P.I.-gravity furnace oil in catalytic gas oil, per cent	100	40.2	90	.....

TABLE 5—YIELD AND PRODUCT CHARACTERISTICS BY RUNNING CRUDES—NO RESIDUUM

Type crude—	Mid-Continent 17.5 per cent crude bottoms	Lagunillas 100 per cent	West Texas—New Mexico 35 per cent bottoms
Charge to plant, per cent of crude	17.5	100	35
Sulfur content of charge to plant, per cent	0.77	2.14	2.20
Charge to catalyst:			
Per cent by volume of crude	17.5	100.0	35.0
A.P.I. gravity, deg.	17.8	17.3	17.1
Initial boiling point, °F.	550	160	576
50 per cent point, °F.	760+	760+	731+
Endpoint, °F.	760+	760+	760+
Dry gas, per cent by weight of charge to catalyst	5.0	4.3	3.9
Catalyst deposit, per cent by weight of charge to catalyst	13.8	11.9	7.8
Gasoline:			
Per cent by volume of charge to catalyst	47.7	44.9	39.4
A.P.I. gravity, deg.	60.3	58.2	59.2
50 per cent point, °F.	243	266	267
90 per cent point, °F.	347	388	355
Endpoint, °F.	399	414	388
Reid vapor pressure, lbs. per sq. in.	12.0	11.0	10.0
Sulfur content, per cent	0.11	0.20	0.21
Copper-dish gum, mg. per 100 ml.	30	65	76
Octane No., A.S.T.M. motor method	79.1	78.6	79.8
Catalytic gas oil:			
Per cent by volume of charge to catalyst	46.1	50.0	58.8
A.P.I. gravity, deg.	24.4	21.5	20.2
Initial boiling point, °F.	423	432	424
50 per cent point, °F.	576	574	654
Pourpoint, °F.	+40	—35	+45
Viscosity (Saybolt Universal) at 100° F., sec.	42	43	56
Sulfur content, per cent	0.40	1.41	1.47
Aniline point, °F.	118	104	135
Liquid recovery, per cent by volume of charge of catalyst	93.8	94.9	98.2

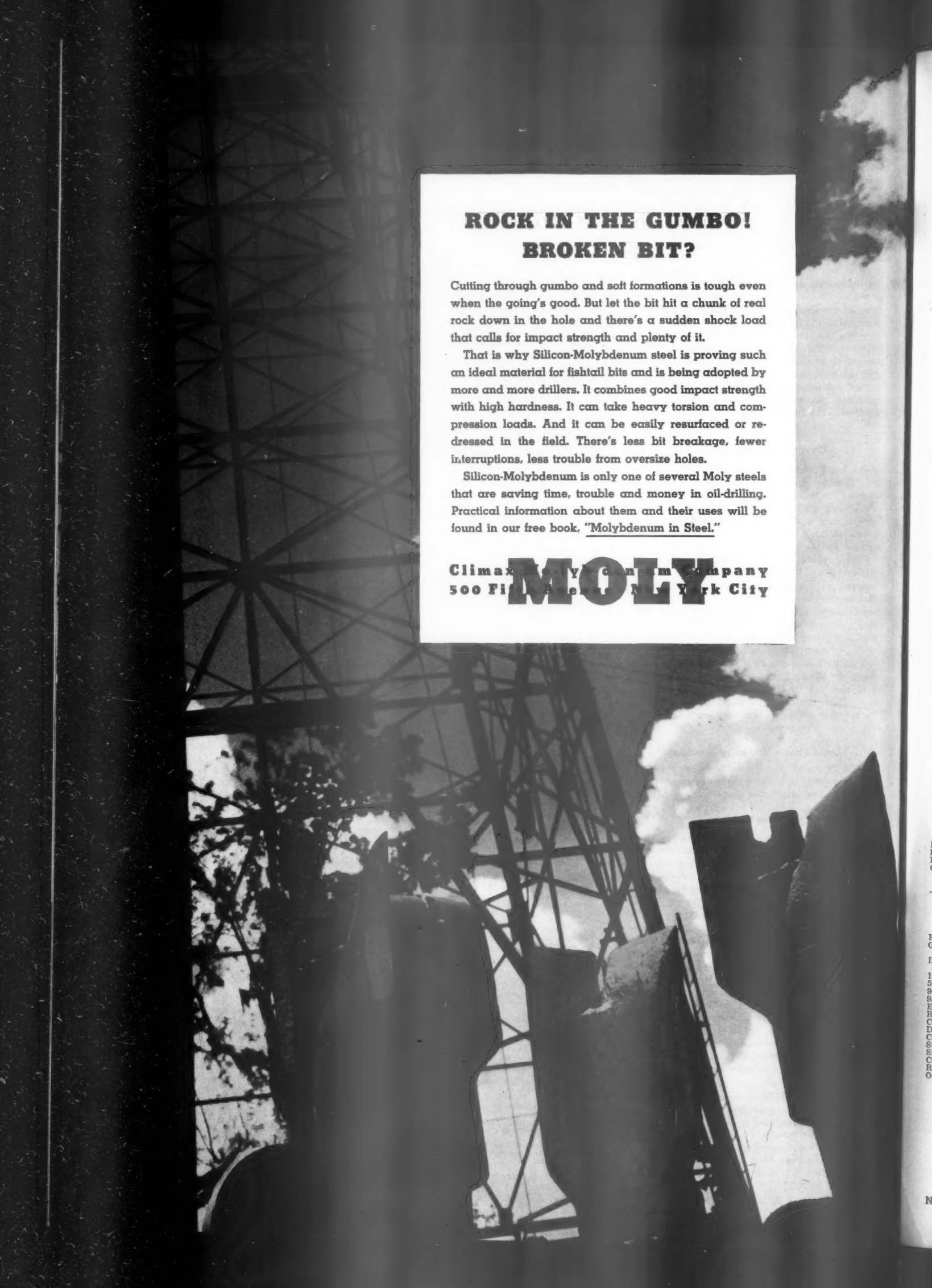

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TABLE 7—YIELDS AND INSPECTION OF GASOLINES TREATED BY CATALYTIC PROCESS

	East Texas						West Texas				
Components of raw gasoline—	Houdry cracked gasoline from 62 per cent bottoms of crude	Houdry cracked gasoline from 62 per cent bottoms of crude	Straightrun gasoline	Thermally-reformed straightrun naphtha	Houdry cracked gasoline from 62 per cent bottoms of crude	Straightrun gasoline	Houdry cracked gasoline from 68.5 per cent bottoms of crude	Houdry cracked gasoline from 68.5 per cent bottoms of crude	Straightrun gasoline	Thermally-reformed straightrun naphtha	Straightrun gasoline
Per cent of components	100.0	44.0	31.7	24.3	41.0	59.0	100.0	51.0	26.5	22.5	100
Treating yield:											
Gas, per cent by weight of charge	0.4		0.8		0.5		0.30		0.3		0.5
Catalyst deposit, per cent by weight of charge	0.2		0.3		0.3		0.45		0.3		0.5
Polymers, per cent by volume of charge	0.2		0.1		0.6		0.25		0.1		0.3
Treated gasoline, per cent by volume of charge	99.2		98.8		98.6		99.0		99.3		98.7
Inspection of gasoline (A.S.T.M. distillation):											
Gravity, degrees A.P.I.	60.6		59.1		58.4		56.5		58.5		58.2
Initial boiling point, °F.	94		90		106		84		94		95
50-per-cent point, °F.	232		238		256		256		238		268
Endpoint, °F.	382		417		402		422		371		391
Recovery, per cent	97		97		97		96		97		97
Residue, per cent	1.2		1.0		1.2		0.4		1.4		0.8
	Raw	Treated	Raw	Treated	Raw	Treated	Raw	Treated	Raw	Treated	Raw	Treated
Silica-dish gum, mg. per 100 ml.	0	0	2	1	0	1	1	1	1	1	6	0
Copper-dish gum, mg. per 100 ml.	3	3	15	4	5	5	13	5	11	6	8	1
Sulfur content, per cent	0.02	0.01	0.04	0.02	0.04	0.02	0.15	0.08	0.11	0.06	0.19	0.06
Doctor test	Sour	Sweet	Sour	Sweet	Sour	Sweet	Sour	Sweet	Sour	Sweet	Sour	Sweet
Copper-strip test	(*)	O.K.	(*)	O.K.	(*)	O.K.	(*)	O.K.	(*)	O.K.	(*)	O.K.
Oxygen-bomb induction period, hours		10+		10+		10+		10+		10+		10+
Lead susceptibility:												
Octane No., A.S.T.M. motor method, with no tetraethyl lead	78.0	77.8	71.1	71.4	66.5	66.9	76.6	77.0	74.2	74.0	63.3	63.8
After addition of tetraethyl lead ½ ml. per gal.	80.9	80.8	75.0	76.2	71.0	70.7	79.0	79.6	77.8	77.9	65.6	68.8
After addition of tetraethyl lead 1 ml. per gal.	82.7	82.2	78.2	79.1	74.4	74.0	80.2	81.1	78.8	79.0	68.3	71.2
After addition of tetraethyl lead 2 ml. per gal.	84.1	84.3	80.8	82.0	78.9	78.4	81.4	82.3	81.0	81.2		
After addition of tetraethyl lead 3 ml. per gal.	85.1	85.3	82.3	82.8	80.9	80.3	82.3	83.4	82.0	82.4	74.3	79.2
Color	21	30	18	30	25	30	14	28	20	30	24	30

*Tarnished.

that a life of several times this period will be obtained. All catalysts used are molded, solid, and are of different composition—depending on service required. A typical cracking catalyst is that described in U. S. Patent No. 2,078,945, viz., an activated hydrosilicate of alumina comprising SiO_2 and Al_2O_3 to the extent of at least 90 per cent, these components being substantially in the ratio of 4 to 1—the material being molded under pressure, dried and baked to produce the catalyst units.

Original catalyst cost for a plant charging 15,000 bbls. daily to catalyst cases amounts to about $36,000, or about $2.40 per barrel of daily plant capacity.

More detailed descriptions of the catalysts used are not available for publication at this time.

Summary

Summing up, the authors believe that in these processes the industry has at its command a new and profitable means to achieve a better economic balance between gasoline, furnace oil, fuel oil, and crude requirements; to meet the need for higher-octane gasoline, and at the same time to adjust refining operations to the seasonal variations in demand for the principal products, gasoline and heating oils. It appears obvious that the application of this process will assist the industry in meeting the ever-increasing demand for distillate products, and at the same time in conserving our crude-oil reserves. The ability of the process to refine economically any type of crude would appear to make available for use many crudes not now suitable for conventional refinery operations, and thus again to increase our reserves.

TABLE 8—TYPICAL HOUDRY PROCESS POLYMER YIELDS AND PRODUCTS

Composition of charging stock, mol per cent				Polymerization, mol per cent of total butylenes (no recycling)
Isobutylenes	n-Butylene	Butanes	C_5+	
5.4	16.6	78.0	0.0	55
9.2	18.8	71.0	1.0	57
15.0	25.2	59.8	0.0	62
18.9	24.6	56.5	0.0	72

Typical Operating Yields

	Charging stock (Mol per cent)	Weight balance (Pct. by weight of charge)		Liquid balance (Pct. by volume of charge)	
		Charge	Product	Charge	Product
Butylenes	28.0	27.7	11.8	26.9	11.5
Butanes	71.0	70.8	70.8	71.8	71.8
Pentanes+	1.0	1.5	17.4	1.3	*13.3
Catalyst deposit			0.02	...	...
	100.	100.	100.	100.	96.6

*Yield of polymers (C_5 and heavier) on unsaturates transformed is 99.9 per cent by weight.

Products

	Polymer gasoline	Aviation cut	Gas-oil cut
Per cent of total polymers	88.5	45.5	11.5
Gravity, °A.P.I.	56.4	61.8	38.5
A.S.T.M. Distillation, in °F.:			
Initial boiling point	216	210	440
5 per cent point	234	220	460
10 per cent point	244	222	467
50 per cent point	296	227	500
90 per cent point	362	233	622
95 per cent point	376	238	632
Endpoint	402	263	656
Recovery, per cent	97	98	98.0
Color	30	30	...
Doctor test	Sweet	Sweet	...
Copper strip test	OK	OK	...
Sulfur content, per cent	0.01	0.005	...
Silica dish gum, mg. per 100 ml.	0.0	0.0	...
Copper dish gum, mg. per 100 ml.	1.0	1.0	...
Reid vapor pressure, lb. per sq. in.	1		...
Octane No., A.S.T.M. motor method	84.7	84.7	...

Blending Value of Polymer Gasoline

Polymer gasoline (Per cent)	Straightrun gasoline (60.2 octane No.) (Per cent)	A-5 reference fuel (40.3 octane No.) (Per cent)	A.S.T.M. octane No. of blend	Octane No. Blending value
10	90	..	64.7	105
20	80	..	69.6	107
40	60	..	78.6	106
10	..	90	49.8	136
20	..	80	58.8	133
40	..	60	72.2	120

Acknowledgement

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APPENDIX

UNITED STATES PATENTS OF HOUDRY PROCESS CORPORATION

Patent No.	Date	Inventor
1,640,668	August 30, 1927	E. A. Prudhomme
1,674,796	June 26, 1928	E. A. Prudhomme
1,683,288	September 4, 1928	F. W. Eley
1,711,855	May 7, 1929	E. A. Prudhomme
1,711,856	May 7, 1929	E. A. Prudhomme
1,737,171	November 26, 1929	R. M. Parsons
1,758,796	May 13, 1930	A. Joseph
1,760,522	May 27, 1930	E. A. Prudhomme
1,769,788	July 1, 1930	W. G. Leamon
1,769,789	July 1, 1930	W. G. Leamon
1,769,790	July 1, 1930	W. G. Leamon
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1,769,793	July 1, 1930	W. G. Leamon
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1,775,366	September 9, 1930	A. Joseph
1,780,159	November 4, 1930	A. Joseph
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1,806,997	May 26, 1931	A. Joseph
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1,987,933	January 15, 1935	J. W. Harrison
1,987,934	January 15, 1935	J. W. Harrison et al
1,989,692	February 5, 1935	E. J. Houdry
1,989,927	February 5, 1935	E. J. Houdry
1,989,934	February 5, 1935	R. C. Lassiat

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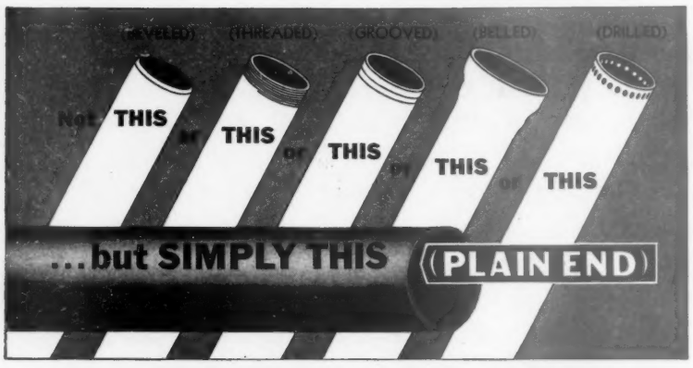
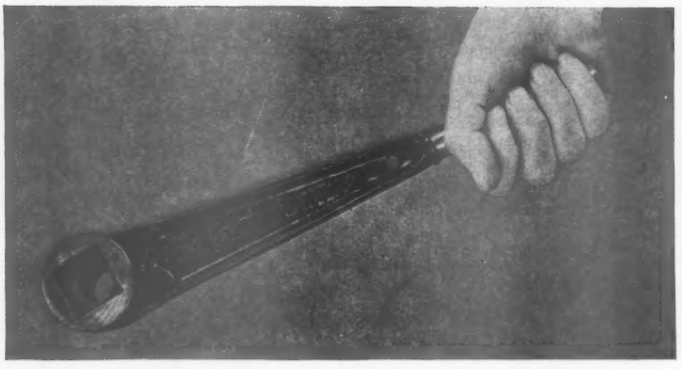


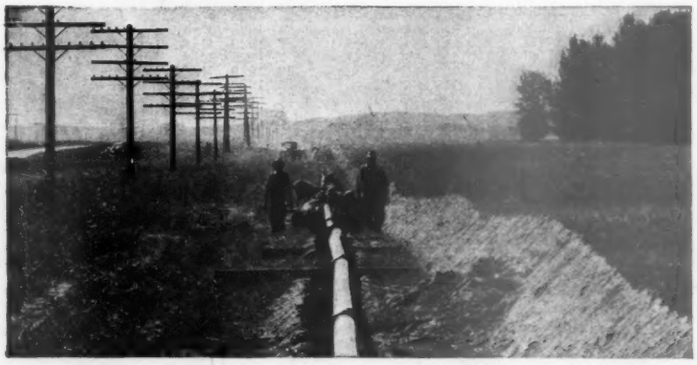
PLAIN-END PIPE—A DRESSER ECONOMY! You save cost of specially prepared pipe-ends when you use "Dressers." *Further economies:* pipe too thin to thread is easily used; also random or left-over lengths of pipe. No tedious matching up of (nor damage to) pipe-ends. No exact pipe lengths. Full inside diameter at joints. Safety.



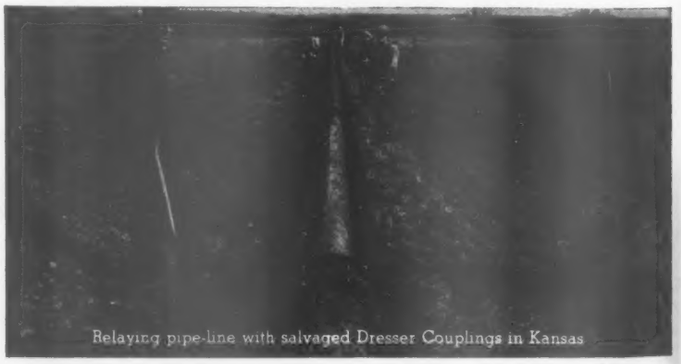
ONE SIMPLE TOOL—ANOTHER ECONOMY!
With "Dressers," a wrench installs! That's why you need no costly, complicated jointing machinery and equipment—which not only is expensive to operate, maintain, and transport, but also depreciates and is hard to handle. Right from the outset, you economize, with "Dressers"!

UNSKILLED LABOR—LEAST EXPENSIVE! Labor costs on a Dresser line are low, uniform, and can be accurately estimated in advance. Only a handful of workmen (easy to obtain locally) is required. Labor turnover is less. Confinement of all work to small area—possible with "Dressers"—reduces the costs of supervision.

FLEXIBILITY SAVES TIME & "SPECIALS"!
Each Dresser Coupling adjusts line simply and practically to curves, contours, trench irregularities, mis- and re-alignments—up to 6° or more. *Saved*, in many cases, are costs of factory "specials," field bends, special expansion joints, exact surveying and grading, delays, etc.



SPEEDY JOINTING CUTS COSTS—NO LAGS!
With "Dressers," fast, clock-like, coordinated jointing—without "bottle-necks"—speeds completion of line despite bad ditch or weather conditions; sharply reduces direct costs, overhead, and interest charges. Assembly above ditch (with flexible Dressers) eliminates bell-holes, wide trenches. Construction economical from several points.

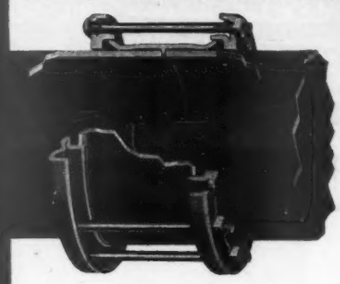


Relaying pipe-line with salvaged Dresser Couplings in Kansas

SALVAGE STILL FURTHER REDUCES COSTS!
Couplings in service many years may be usually dismantled and re-claimed with 100% efficiency by simply using new and interchangeable bolts and gaskets, which often represent only 25% of original cost. No cutting off of pipe-ends. Temporary lines may be repeatedly re-laid, using all same parts. This salvage greatly reduces cost *per installation*.

ECONOMY!*

(Cutaway view of Dresser Coupling, Style 38)



*ECONOMY... ...YES! ALSO:

1. PERMANENT TIGHTNESS—*proved* for 50 years, on 150,000 miles of pipe.
2. FLEXIBILITY—expansion, ground movements, vibration, lowering stresses, etc., are absorbed. Many curves, contours, etc., made with straight pipe.
3. SIMPLICITY—standard parts are assembled on plain-end pipe by unskilled labor, using only a wrench, under almost any weather or ditch conditions.
4. SPEED—typical examples: 3 min. for 4" size; 5 min. for 8"; 8 min. for 14"; 10 min. for 18"; 12 min. for 20" (two workmen).
5. STRENGTH—predetermined; joints safely withstand any specified pressure.

Dresser Couplings, Style 38, for Light-wall Steel Pipe, are ideal, economical joints for this pipe, especially if wall is too thin to thread. Does not damage internal linings often used (a special advantage in sizes too small for workmen to enter). Same as Regular Coupling (see cutaway view above) except of lighter construction. Lower in price. Transportation costs also less. Sizes: 2 OD, 2 ID, 2¾ Cas, 3 ID, 3½ ID, 4 ID, 4½ ID, 5⅝ Cas, 5⅝ Cas, 6 ID, 6⅝ Cas, 7⅝ Cas, 8 ID.

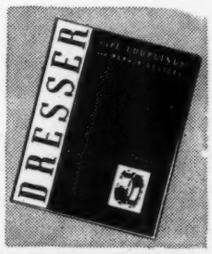
WHEN you figure pipe-joint ECONOMY, include "pipe-joint materials and labor"—but don't stop there. That's only part of *true* cost.

Add in, too, certain other items that also affect pipe-joint costs, such as: heavy outlays for jointing tools and equipment; unexpectedly high labor costs; possible supervision difficulties; adverse effect on other operations of slow joint-making, bad weather, or wet ditches; difficulties in getting tests; or later repairs and service interruptions.

How do Dresser Couplings eliminate such indirect but important costs?

Initially, Dresser Couplings save because labor costs are low; line is completed faster; no costly machinery is required; flexibility of coupling eliminates many fittings and bends; *plain-end* pipe is used; and operators report gratifying test results quickly. And note that Dresser material-and-labor costs can be accurately estimated in *advance*—down to the last penny—no "extras"!

After installation, Dresser Couplings continue to reduce costs because their flexibility absorbs harmful expansion, vibration, and ground movements; and because their tightness, strength, and trouble-proof performance help give freedom from excessive maintenance, leakage, service interruptions, and revenue losses. Moreover, when the line is taken up, Dresser joint parts may be salvaged, effecting a *still further* reduction in *ultimate* pipe-joint costs—the true and only reliable yardstick of economy!



For further details, write for our General Catalog No. 36, a virtual handbook on pipe joints. ● S. R. DRESSER MFG. CO., BRADFORD, PA. *New York:* 17 East 42nd Street; *Chicago:* Peoples Gas Building; *Houston:* Shell Building; *San Francisco:* 1038 Polk Street; *In Canada:* Dresser Mfg. Co., Ltd., 60 Front Street, West, Toronto, Ontario.

DRESSER
PIPE COUPLINGS

1,989,935	February	5, 1935	R. C. Lassiat
1,992,307	February	26, 1935	E. J. Houdry
1,992,946	March	5, 1935	J. W. Harrison
2,000,960	May	14, 1935	A. Joseph
2,031,591	February	25, 1936	J. P. Daugherty, Jr.
2,031,600	February	25, 1936	J. W. Harrison et al
2,033,953	March	17, 1936	T. B. Prickett et al
2,035,467	March	31, 1936	W. F. Faragher et al
2,035,478	March	31, 1936	E. J. Houdry
2,042,468	June	2, 1936	E. J. Houdry
2,042,469	June	2, 1936	A. Joseph
2,045,596	June	30, 1936	R. H. Hammell
2,045,600	June	30, 1936	E. J. Houdry et al
2,047,223	July	14, 1936	T. B. Prickett
2,059,255	November	3, 1936	R. C. Lassiat
2,062,333	December	1, 1936	T. B. Prickett
2,072,108	March	2, 1937	E. J. Houdry
2,073,638	March	16, 1937	E. J. Houdry
2,073,650	March	16, 1937	T. B. Prickett
2,078,247	April	27, 1937	E. J. Houdry
2,078,945	May	4, 1937	E. J. Houdry
2,078,946	May	4, 1937	E. J. Houdry
2,078,947	May	4, 1937	E. J. Houdry et al
2,078,948	May	4, 1937	E. J. Houdry
2,078,949	May	4, 1937	E. J. Houdry
2,078,950	May	4, 1937	E. J. Houdry et al
2,078,951	May	4, 1937	E. J. Houdry
2,079,630	May	11, 1937	T. B. Prickett et al
2,082,801	June	8, 1937	E. J. Houdry
2,084,357	June	22, 1937	T. B. Prickett
2,087,268	July	20, 1937	H. W. Sheldon
2,092,017	September	7, 1937	T. B. Prickett
2,094,601	October	5, 1937	E. J. Houdry
2,095,264	October	12, 1937	A. E. Pew, Jr.
2,095,265	October	12, 1937	J. H. Pew
2,095,266	October	12, 1937	T. B. Prickett et al
2,095,972	October	19, 1937	W. F. Faragher
2,102,644	December	21, 1937	T. B. Prickett
2,108,069	February	15, 1938	R. C. Lassiat
2,108,076	February	15, 1938	T. B. Prickett
2,108,081	February	15, 1938	H. A. Shabaker et al
2,108,087	February	15, 1938	C. H. Thayer
2,114,303	April	19, 1938	E. J. Houdry
2,114,312	April	19, 1938	R. M. Parsons
2,115,714	May	3, 1938	E. J. Houdry et al
2,121,046	June	21, 1938	A. E. Pew, Jr.
2,126,400	August	9, 1938	W. G. Leamon
2,127,529	August	23, 1938	T. B. Prickett
2,129,693	September	13, 1938	E. J. Houdry

TABLE 9—VISCOSITY-BREAKING HEAVY-CRUDE RESIDUALS

Source—	(1) West Texas-New Mexico crude	(2) 55 per cent Grade "B" Coastal and 45 per cent East Texas
Per cent of crude	8.5	8.1
Residue charge:		
Gravity, degrees A.P.I.	8.5	12.6
Viscosity (Saybolt Universal) at at 210° F., sec.	...	734
Sediment, per cent	0.3	0.01
Gas oil:*		
Per cent of charge	3	5
Gravity, degrees A.P.I.	20.2	25.7
Viscosity (Saybolt Universal) at at 100° F., sec.	58	68
Fuel-oil product:		
Gravity, degrees A.P.I.	11.6	14.5
Viscosity (Saybolt Universal) at 122° F., sec.	145	159
Pourpoint, °F.	+30	+25
Flashpoint (Pensk-Martens), °F.	150	154
Sediment, per cent	0.4	0.08
Volume per cent on residue charge	98.5	102
Naphtha, volume per cent on residue charge	1.0	2.1
Gas, weight per cent on residue charge	3.5	1.5
Catalyst deposit, weight per cent on residue charge	1.8	0.4

*Gas oil used for washing-in process and appearing in final product.

Petroleum Engineering Course

Classes in petroleum engineering, oil geology, and petroleum technology and kindred subjects will be featured in the new schedule of classes which the University of California extension division will open during January and February.

Industry's Hottest Flame

The oxyacetylene flame, which is produced by igniting a mixture of oxygen and acetylene, yields an incredibly intense heat—approximately 6,000° F. Controlled by a blowpipe, this flame is used today for hundreds of welding and cutting operations. In welding, it readily fuses two pieces of metal into a single, seamless piece, while in cutting, it can, by the addition of a jet of oxygen, instantly cut through heavy sections of steel and iron.

Universal Oil Issues Patent Booklet

Summarizing the 1,100 United States patents owned by the Universal Oil Products Co., a booklet of 330 pages has been issued by the latter and is known as "Universal Inventions." The work is largely the result of research carried on by the company at its Riverside, Ill., laboratories in which many outstanding authorities are engaged. The booklet includes patents issued to September 1.

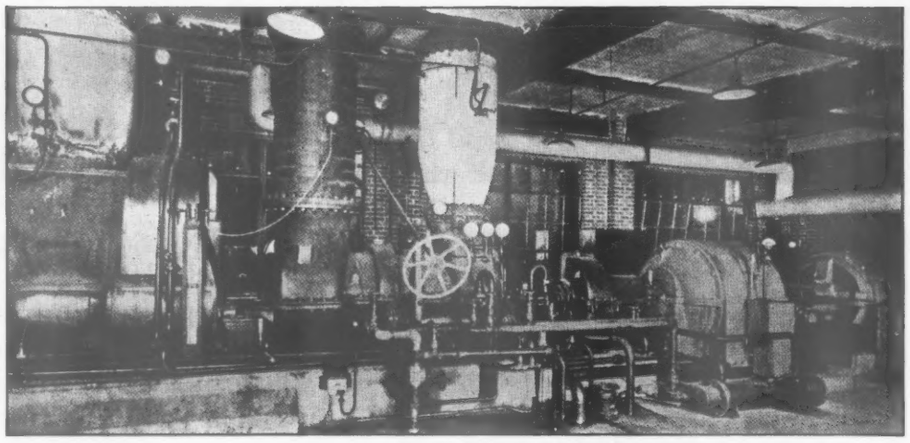
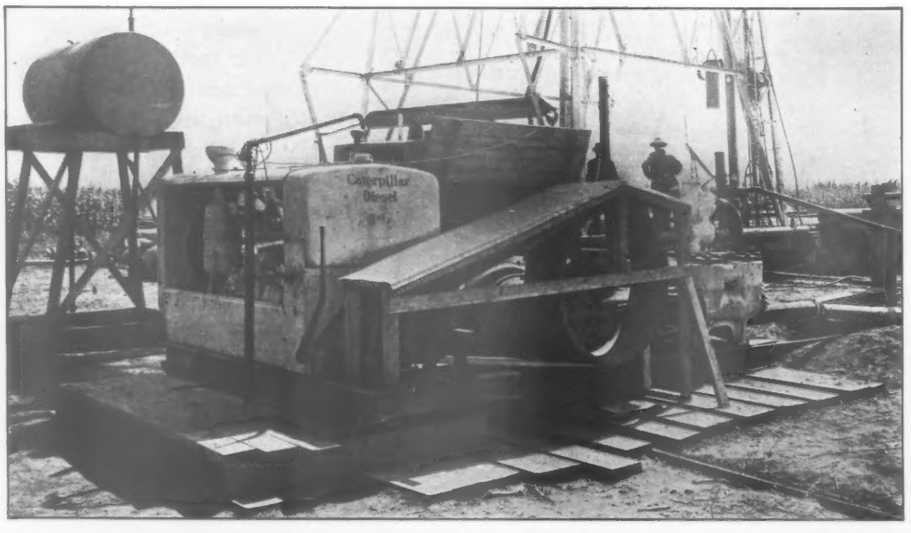


Fig. 5—Turbo compressor generator in Houdry unit of Sun Oil Co. refinery at Marcus Hook

SAFETY — Temporary Guard for Pump Belt Drive



While the majority of accidents in the petroleum industry are the results of "supervisory causes" (carelessness, failure to use safety equipment and mistakes in judgment of the foreman and men) a large number are still caused by "physical hazards."

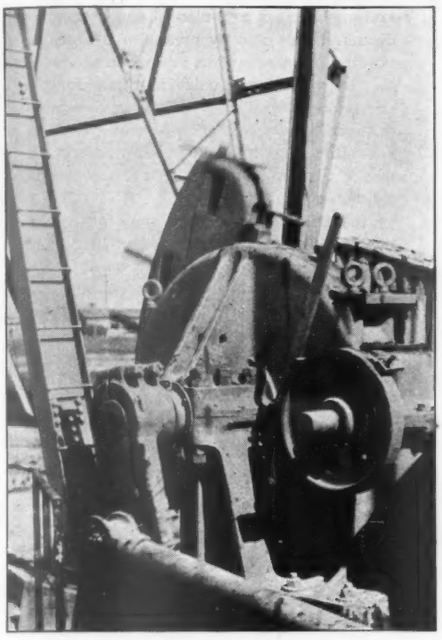
A concerted effort has been made to guard all moving machinery, particularly the driving parts, including chains and V-belts. These are a constant source of danger as there is always the possibility of slipping and falling into the belt or chain. Some workmen are tempted to reach through the belt or chain and thus run the risk of becoming entangled in the machinery.

Most operators have permanent guards, built from angle irons, sheet metal and mesh screen, to protect workmen and on-lookers. It takes time to construct these guards and this operator did not feel it was safe to leave this source of danger unguarded while waiting for the fabrication of the permanent protection. His men constructed this guard from 2 by 4-inch lumber and it serves adequately to prevent anyone becoming entangled in the belt.

The drive pulley on the engine runs at 1,250 r.p.m. when the motor is being operated at capacity speed. A loose sleeve, or any piece of loose clothing would be sufficient to pull a person into the belt, resulting in death or permanent injury.

This photograph was taken in Illinois where there is no state supervisory body for the regulation of safety practices in the oil field. Safety is thus dependent on the individual operator and his insurance carrier, the latter often insisting on the establishment of such safety devices. This operator has also eliminated another source of danger by burying the 2-inch line which carries water to the pump rods. His workmen can work around the pump without danger of stumbling or tripping over the line.

OPERATING IDEAS

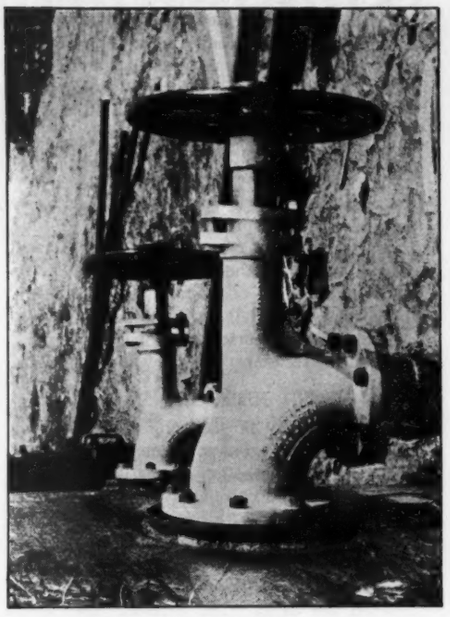


A-Frame Ladder

Rungs welded across the flanges of one of the channels of an A-frame for a pumping rig provide a ladder which is useful for servicing and lubricating work; unlike most lease equipment, it cannot be "borrowed" or mislaid. Channel web forms a toe board.

Winch for Scrapers

This scraper trap in East Texas is designed to speed up operations. The head is removed and the scraper is inserted; a winch line runs over a pulley at the end of the plunger and pushes the scraper into the line.

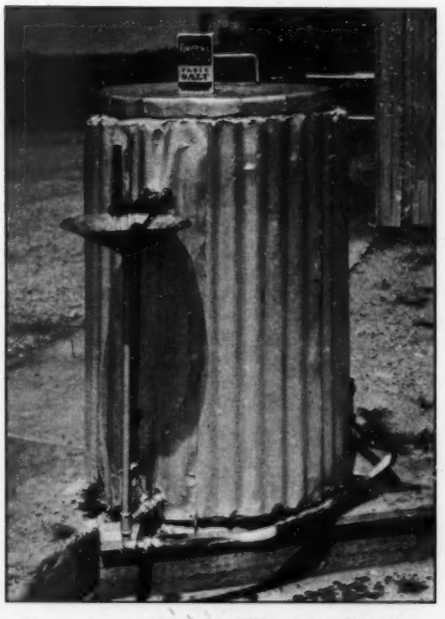


Fire Closes Valve

Antifire and antifreeze valve used on a tank of an eastern pipe line, closes automatically by a fusible plug in valve wheel nut.

Oil Drum as Volume Tank

Use of the material at hand is characteristic of the oil industry. This operator was using gas direct from the well as fuel for the four-cylinder motor which operates the pumping unit. The gas pressure was very low and would head up so he made a surge tank from a 55-gallon drum. A low pressure is maintained in the tank by a regulator between it and the well head. The gauge in the top of the drum shows the pressure between the regulator and the motor. The tank has sufficient volume to keep the motor operating smoothly despite the heading of the well. This installation is used to pump two wells on the east side of the K.M.A. field.



Gasoline Plant Water Cooler

No ice is needed for cooling the drinking water at this gasoline plant because the fountain is cooled by expanding butane. The water cooler is made from sheet steel covered with 2 inches of insulation. The outer shell is about 4 feet high and 3 feet in diameter. The box of salt on top of the water fountain is a preventative for heat exhaustion during the summer. Small doses should be taken by the men several times a day to replace the body salt lost through perspiration.

CHEMISTRY of ASPHALT

By George W. Eckert

Missouri State Highway Department
University of Missouri, Columbia, Mo.

THE chemistry of asphaltic bitumens is the chemistry of the higher molecular weight hydrocarbons, and the physical chemistry of micelles of molecular and colloidal dimensions and of their interfaces. The knowledge of the chemistry of the hydrocarbons in asphalts is very meager, but this is not so astounding in view of the fact that very little is known about the constitution of the hydrocarbons of the lubricating oil range. Despite this lack of information, a great deal of work has been done and at least some indications have been arrived at. Theories of the nature of asphalts must necessarily fall in line to varying degrees with the theories on the nature of petroleum, petroleum coke, coal and tars.

Historical

Boussingault[1] in 1837 appears to have been the first to attempt to solve the chemical nature of asphalts. He distilled a natural asphalt and obtained an oil which he called "petrolene," the residue he called "asphaltene." Le Bel[6] extracted bitumen with naphtha and then precipitated asphaltenes with amyl alcohol and extracted the asphaltenes with ethyl ether to give a red rosin-like material. Richardson[7] distinguished four components in asphalts, e.g., petrolenes, maltenes, asphaltenes, and carbenes. Petrolenes were the hydrocarbons volatile at 325° F., the maltenes, non-volatile hydrocarbons soluble in naphtha, asphaltenes, insoluble in naphtha but soluble in CCl_4, and carbenes, insoluble in CCl_4 but soluble in CS_2. Marcusson[8] later distinguished between the components oily constituents, resins, asphaltenes, and asphaltic acids and their anhydrides in natural asphalts. Since acid constituents are either absent or present in very small quantities in asphalts manufactured from petroleum products, most investigators speak more often only of the asphaltenes, asphaltic resins, and oily constituents. Other components which are often determined are carbenes, insoluble in CCl_4 but soluble in CS_2, and carboids, which are insoluble in both CCl_4 and CS_2. Some investigators subdivide the asphaltine group, and others subdivide the resin group.

Asphaltenes, Resins and Oily Constituents

The divsion of the constituents of asphalt into asphaltenes, asphaltic resins, and oily constituents is used to a great extent, although even slight variations in methods and reagents do not give the same results. The content of asphaltenes, determined by precipitation with petroleum ether depends on the type of asphaltenes present, the type and quantity of resins and oily constituents present, the aromatic compounds in the petroleum ether and the method of separation. The precipitation of asphaltenes have been and are being made with reagents other than petroleum ether. The basis of the separation of resins from oily constituents is that resins adsorbed by various materials are rendered insoluble in petroleum ether, whereas the oily constituents are presumably not changed. Adsorbents which are used are bone charcoal, silica gel, and fuller's earth, and it would be expected that these materials would give different results, as the surface phenomena in the adsorption of the resins is not only a matter of area of adsorption surface exposed, but also a function of the physical and chemical characteristics of the surface.

The nature of the asphaltenes, as well as the resins and oily constituents in different asphalts very considerably, and their respective properties as a part of the asphalt depend not only on their own type and quantity present, but also on the types and quantities of the other constituents in the asphalt. Properties of the asphaltenes, such as solubility, molecular weight, effect of heat, and some reactions have been discussed by Spielmann,[25] Kalichevsky and Fulton,[21] Mack,[22 23] and Sachanen.[24] Richardson[20] was the first to show that neither asphaltenes or petrolenes alone could cement sand, and it has been realized since that the properties of the constituents as they exist in asphalt are somewhat different than when isolated.

Types of Hydrocarbons in Asphaltic Bitumen

Asphaltic bitumens may be considered to consist of hydrocarbons of the olefin, paraffin, aromatic, and naphthene types. Asphalts may also contain derivatives consisting of combinations of these various types. Natural asphalts also contain varying amounts of acidic materials, sulfur, oxygen and nitrogen compounds, but petroleum asphalts usually only have a small quantity of these materials present. The ring compounds in asphalts are considered to be six membered, but cyclopropanes, cyclopentanes, cycloheptanes, and cyclooctanes have been identified in petroleum, while decanaphthene, hendecanaphthenes, and naphthenes with 13 to 26 carbon atoms have been indicated in petroleums. Some are monocyclic and others polycyclic.[10] Baeyer's strain theory implied that instability of rings larger than five carbon atoms would increase with the size of the ring. Mohr[11] showed that strainless configurations exist for cycloheptane and from the Sachse-Mohr concept it follows that the higher cycloparaffins have a larger number of strainless configurations which are mutually convertible into each other.[12] Although only a few studies have been made of the thermal reactions of the higher cycloparaffins, cyclooctane, cyclopentadecane, cycloheptadecane and cyclotriacontane are unaffected by prolonged heating at 250° C. even in the presence of phosphorus and concentrated hydrogen iodide.[10]

Ring compounds are presumably not only linked in the same manner as naphthalene and anthracene, and also in the manner of diphenyl, but also by means of bridges involving oxygen, sulfur, or carbon atoms.

There are no precise methods for the determination of the various hydrocarbon groups in complex mixtures of paraffins, aromatics, and naphthenes. Failure in the use of distillation methods are due to the following factors:

(*a*) Difference in boiling points of hydrocarbons diminishes with increasing molecular weights.

(*b*) The number of isomers increases rapidly with increasing molecular weights.

(*c*) Constant boiling mixtures.

(*d*) Polymerization and depolymerization occurring before the boiling point is reached.

Some investigators use concentrated and fuming sulfuric acid to determine unsaturated and aromatic compounds in asphaltic bitumen. Sulfuric acid can act in the following manner:

(*a*) Sulfonation (to give products of the structure $R\text{-}SO_3H$).

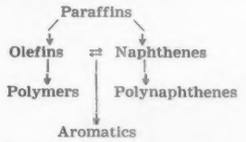
(*b*) Sulfation (unsaturated compounds $+ H_2SO_4$).

(*c*) Induce polymerization reactions.

(*d*) Induce oxidation reactions.

Many paraffin and cycloparaffin hydrocarbons are oxidized as well as sulfonated on treatment with fuming sulfuric acid. Concentrated sulfuric acid has no effect in the cold on naphthenes, although at ordinary temperatures some cycloparaffins form aromatic sulfonic acids and resins. The aromatic hydrocarbons are the most readily sulfonated. With some unsaturated compounds the main reaction is polymerization rather than sulfation. The use of concentrated or fuming sulfuric acid can only lead to very uncertain results in attempting to determine the types of hydrocarbons in asphalts.

Asphaltic bitumen consisting of the residual oils or residual asphalts will contain the high molecular weight substances in the original petroleum plus any polymerization and depolymerization products. The asphalts produced in the cracking of petroleums has been suggested by Egloff and Morrell[2] to take place by the following reactions:

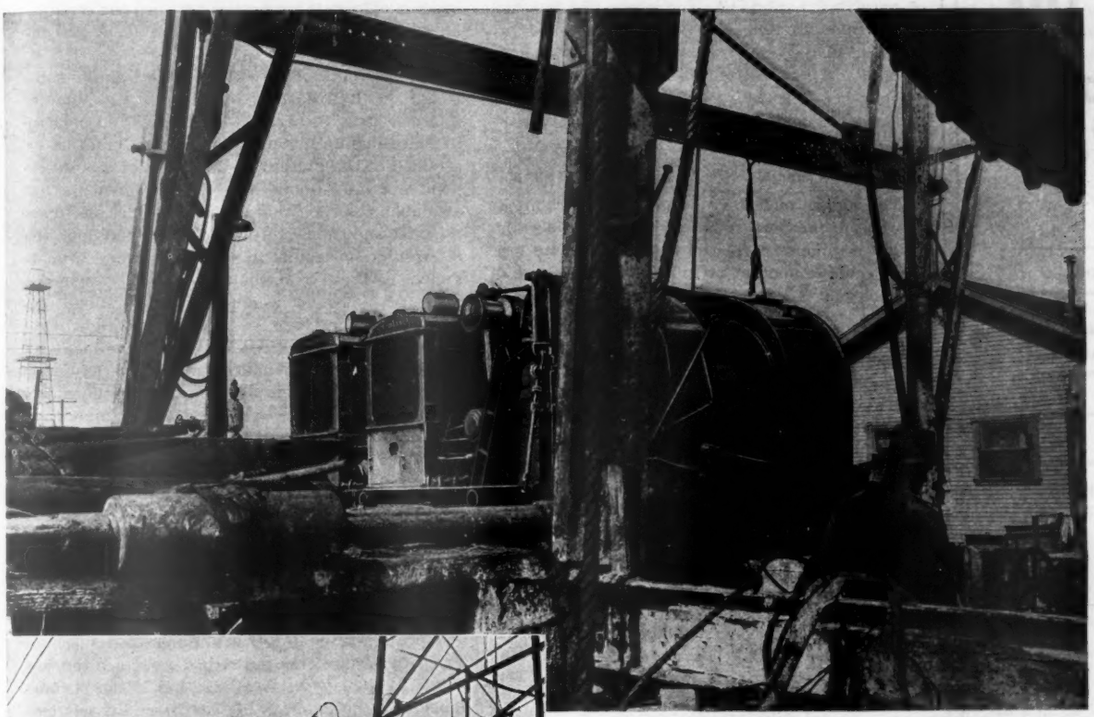


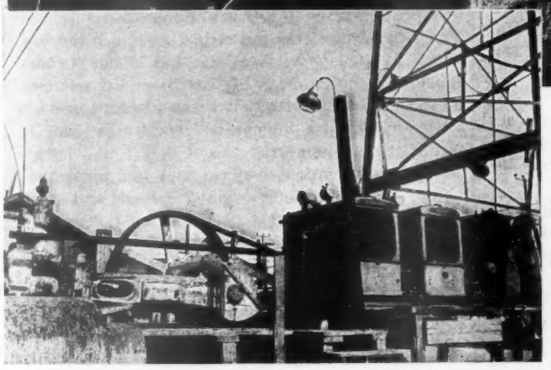
The cracked asphalts will be a system of the above substances, the proportions depending upon the conditions of the cracking process. The asphalts obtained by the oxidation of residual oils are postulated to be formed by dehydrogenation with the formation of unsaturated compounds which then polymerize; and also by the formation of intermediate compounds such as aldehydes and acids which finally split out carbon dioxide. Blowing of asphalts increases the content of asphaltic resins and asphaltenes, and also increases the molecular weights of these bodies.

Relation of Physical Properties to the Constitution

Hugel[13] observed that for hydrocarbons of the same molecular weight the viscosity of paraffins is less than that of cyclic hydrocarbons. The introduction of side chains and unsaturation had little effect on the viscosity of the paraffin hydrocarbons, whereas with cyclic hydrocarbons, side

Take Stock of Your Power Problems— Then Turn Them Over to International





International PA-100 Power Units are 6-cylinder engines developing 110 max. h.p. at 1400 r.p.m., operating on gasoline. Combination gas-gasoline equipment and straight gas equipment are available.

Savings of from $1,400 to $6,000 a month, according to location and availability of fuel and water, are reported made by these two International PA-100 Power Units compared to steam. They are owned by William P. Mason, Jr., Wilmington, Calif. Besides operating the draw works, these engines also power the 6x16 H. D. slush pump. Operating on butane, the fuel cost for both is $10 a day. When these pictures were taken, the 5,700-foot well had just been brought in.

Much less time is required to move this rig in and out of location than a steam rig, and there is no water problem to worry about where water is scarce.

NO MATTER what type of power you have been using, you owe it to yourself and your business to investigate International Power and International-powered equipment.

International Engine *design, quality construction, performance, economy,* and *after-sale service* are everything you want for your operations. And the wide acceptance of International Engines throughout the industry is the best assurance of their ability to solve your power problems.

There are 11 models in the line, ranging up to 110 max. h.p., for gas, gasoline, and Diesel operation. They are used singly or in batteries—two or more can be installed and cut in or out as power requirements vary. For complete information, see the nearby International industrial power dealer or Company-owned branch.

INTERNATIONAL HARVESTER COMPANY

(Incorporated)

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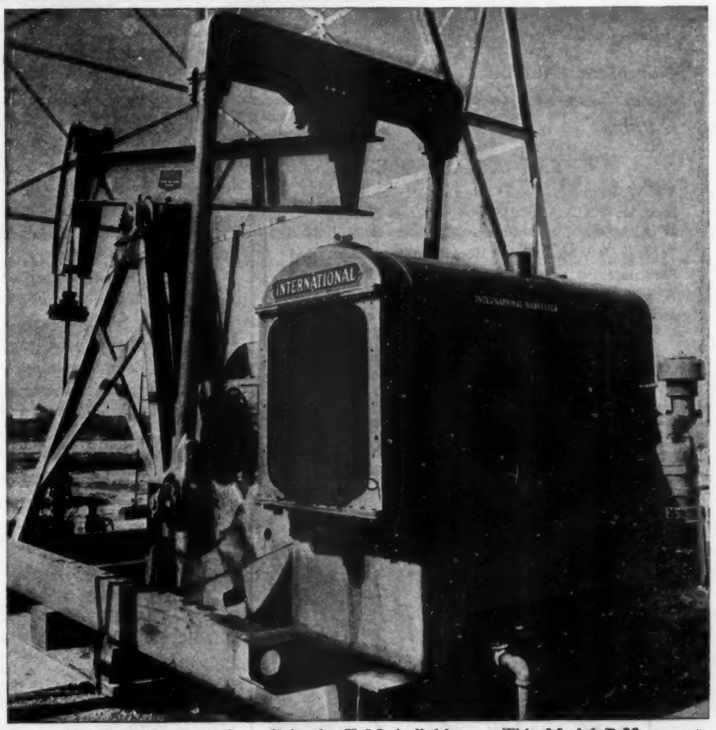

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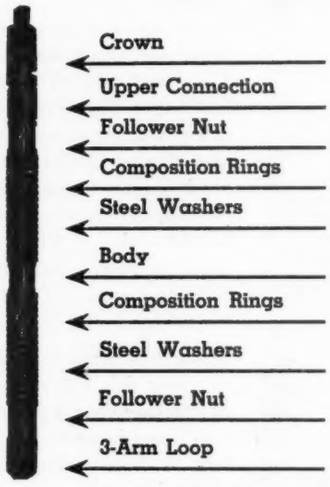

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chains, particularly methyl group had a specific effect although not always in the same direction. The viscosity of unsaturated hydrocarbons was increased by saturation. These facts are of particular interest in considering the viscosity of the dispersion medium of asphaltic bitumens, which consist of the oily constituents and asphaltic resins.

The variation which can occur in the nature of the oily constituents and resins can be seen by the following table, given by Egloff[10] for the content of paraffins, naphthenes and aromatics in crude oil:

	Per cent		
	Paraffins	Naphthenes	Aromatics
Paraffinic	46-61	22-32	12-25
Paraffinic, naphthenic	42-45	38-39	16-20
Naphthenic	15-26	61-76	8-13
Paraffinic, naphthenic, aromatic	25-35	36-47	26-33
Naphthenic, aromatic	0-8	57-78	20-35

The higher molecular weight hydrocarbons do not vary in properties as much as low molecular weight compounds when changing from one type of molecule to another or in increasing the size of the molecule by CH_2 or CH_3 groups. Steric and orientation effects arise with the larger molecular weights and these factors will affect the physical properties of the asphaltic material.

The failure of asphaltic roads may be traced in part to the asphalt lacking proper physical and chemical properties. All failures, however, can not be attributed to the asphalt. Some causes of failures of asphalt pavements are asphalt with improper ductility, too low penetration, insufficient in quantity or in too large quantity; overheated asphalt, lack of cementing value, asphalt subject to decomposition by weathering; lack of traffic, imperfections in the base, insufficient compression when laid, dirty sand, nonuniform thickness of surface mixture, water from beneath, frostheaving, improper grading of material, insufficient dust or filler, insufficient density.

Collodial Properties

A. W. Dow[3] was probably the first to point out the colloidal nature of asphalts. Two views have since been suggested as to the nature of the dispersed phase:

(*a*) Asphaltic bitumens are colloidal solutions in which the asphaltenes are high molecular weight compounds and lyophile with respect to aromatic hydrocarbons.

(*b*) Asphaltic bitumen is a highly protected lyophobe sol with a carbon kernel with resulting lyophylic properties.

The properties which characterize lyophilic sols and which have been evidenced to a certain extent in asphaltic bitumen are:

(*a*) Density varies linearly with disperse phase present (with same medium).

(*b*) Sol shows elastic reactions.

(*c*) Measured viscosity depends on velocity of shear.

(*d*) Tendency of sol to form gel under certain conditions.

(*e*) Increase in temperature usually increases peptization.

(*f*) Phenomena which point to nonspherical elongated form of the particles in the sol.

(*g*) Reactivity of the micellae.

(*h*) The transformation of lyophilic into lyophobic sol which may occur by chemical transformation.

(*i*) High stability of the sols.

(*j*) The relative viscosity of the sols increases rapidly with increased concentration of dispersed phase.

Solvents

The use of solvents is being applied extensively in various manners relative to asphaltic bitumen, particularly for:

(*a*) Separation of undesirable constituents.

(*b*) Separation of asphalt into fractions, for research purposes and for producing asphalts of desired qualities.

(*c*) Specification purposes.

(*d*) Preparation of asphalt powder.

(*e*) Preparation of cut-back asphalts.

(*f*) Extraction of asphalt from mineral matter and road aggregate (for purposes of investigation).

Two factors must be considered in the use of liquids with asphaltic materials; first the solvent effect and secondly the coagulation or peptization effects. These two actions are not always strictly defined in the case of asphalts, as there is only a gradual change in properties between the constituents of the medium, the dispersion agent and the dispersed phase.

The asphalt bodies will be subject to the same rough qualitative rules for solubility as simpler hydrocarbons. In regard to solubility and polarity in the asphaltic material, conclusions must be restrained at the present as the effect of dipoles depend not only upon their electric moments but also upon their location in the molecules and upon the sizes and shapes of the molecules and upon the electronic constraints in them, and very little is known of these in asphaltic materials. As to the effect of molecular weight (solubility should decrease with increase in molecular weight) the same effects are noticed as was pointed out by Carothers[28] for high molecular weight polymers. The solubility of high polymers is sometimes surprisingly great compared to that of analogous simple compounds of lower molecular weight. Carothers states that this is no doubt due to the polymers consisting of groups having different lengths, which may be capable of behaving independently. Also, the lattices are not so well ordered and rigidly constructed as those of low molecular weight compounds.

Nellensteyn[31] maintains that with liquids which are totally miscible with the dispersion medium and protective bodies of a bitumen that flocculation will occur if the liquid has a surface tension below 24 dynes/cm. at 25° C., and if the surface tension of the liquid is higher than 26 dynes/cm. at 25° C., total peptization takes place. However, with any specific solvent and specific asphalt it is difficult to judge the extent of the miscibility with the dispersion medium and the protective bodies, even with liquids such as hexane and ethyl ether, the flocculated substances must be reprecipitated and washed a great number of times to remove the protective bodies and adsorbed material.

Cut back asphalts which signifies those asphalts to which petroleum distillates have been added, have a variety of applications. The properties of a cut-back as a road material are dependent on the asphalt itself, the nature of the cutting liquid and the effect of the liquid upon the asphalt. The cutting liquids vary as to the type of hydrocarbons they contain; i.e., paraffin, aromatic, and naphthene, and they also vary in the magnitude of their molecular weights. Beside acting as a diluent the cutting liquid may act as a coagulating agent or as a peptizing agent.

Blending

Blending refers to the improvement of a bituminous material for a particular purpose by the addition of one or more other bituminous substances. The practice has greatly outpaced the theory, which has been the case with all phases of the application and use of bituminous materials. Blending, which may be used to soften, harden, improve weathering properties, improve temperature susceptibility, etc., can involve (*a*) the proportioning of the hydrocarbon types, i.e., naphthenes, aromatics, etc., (*b*) the proportioning of size and shape of molecular types, (*c*) the alteration of the conditions of the dispersed phase, i.e., coagulation, peptization, concentration, etc.

The separation of asphalts by means of solvents into various fractions and recombining these fractions in different ratios or with other asphalt types or fractions of other asphalt types is the latest development in the art of blending. The reported

work of Holmes and Raphael[18] should be consulted relative to this phase of blending. In this respect, asphalts may be considered to be a blend of a great number of hydrocarbons of different molecular weights and structures.

Addition Agents

Various materials which are added to improve the qualities of asphalts may do so by acting as mechanical fillers, functioning as protective colloids, increasing the active polar constituents, inducing polymerization, or oxidation, or acting as an inhibitor to oxidation. Some inorganic materials which are used as addition agents are sulfur, clays, silts, cement, slags, powdered minerals, carbonates, sulfates, chlorides, silicates, oxides, borates, and phosphates. Among organic materials which are used are rubber, organic acids, soaps, unsaturated oils, saturated oils, synthetic resigns, gums, resins, glycerol, amines, phenols, and carbohydrates.

Emulsions

For the preparation of bituminous emulsions, a large number of dispersing agents have been used, chief among which are:

(*a*) Clays, inorganic oxides, hydroxides, silicates, carbonates and phosphates.

(*b*) Soaps, albuminoids, proteins, gums, amines, tannins, polysaccharides, derivatives of mineral and vegetable oils.

Stabilizers or protective colloids of various types are often used in conjunction with the dispersing agents. Items of importance in regard to emulsions of asphaltic bitumens are:

(*a*) Amount and type of polar constituents in the asphalt, as this affects the emulsifiability of the asphalt, type of emulsifier required, and orientation of the molecules at the globule interfaces.

(*b*) The stability of the emulsion, which depends on interfacial tensions, Brownian movement, electric charge on the globules, and size distribution of the globules.

The types and quantity of emulsifier and stabilizer used affects not only the stability of the emulsion, but also the ease of breaking in contact with the road aggregate. It will to some extent affect the behavior of the asphalt in contact with aggregate surface, as the emulsion is oriented in the interface of the asphalt globules and will consequently appear at the interface between the asphalt and aggregate. The viscosity of an emulsion is dependent on (*a*) the asphalt content, (*b*) the type of asphalt used and (*c*) the composition of the emulsifier solution used. The viscosity of the asphalt has no influence on the viscosity of the emulsion made with it.

Coagulation of an emulsion when applied on a road depends on the type of aggregate surface, mechanical disturbance, elimination of water, and substances added to increase the rate of coagulation.

Weathering

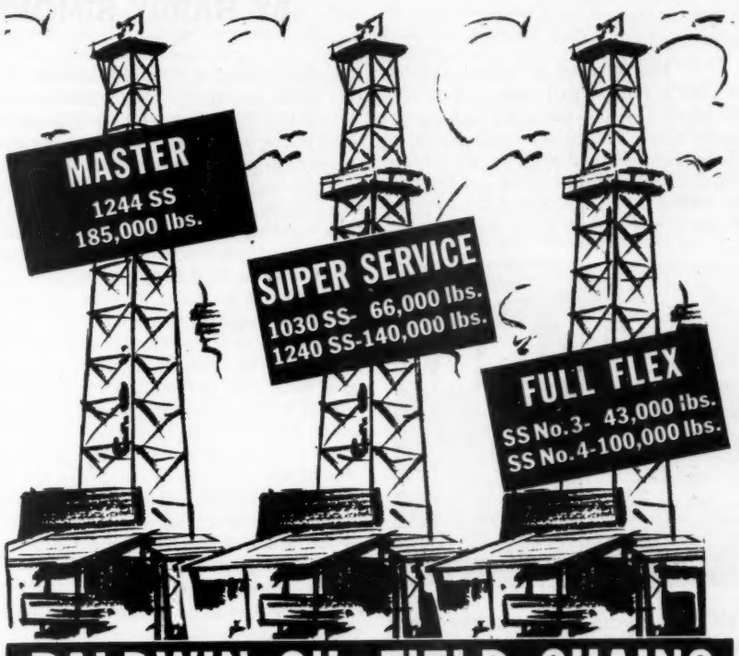
The behavior of asphalts when exposed to the action of sunlight, water, air, time, and varying temperatures is recognized as an important problem when considering the use of asphalts in road construction. Evaporation of the more volatile constituents was first considered to be the chief factor in the change in properties of asphalts after a long period of use. Accelerated weathering tests have shown that the other factors mentioned above are also important in the weathering of asphalts. A difference of opinion exists as to the extent of the action of sunlight on petroleum asphalts, although tests show that isolated asphaltic resins and asphaltenes become less soluble in the usual solvents after exposure to sunlight.

The asphaltenes are the most easily oxidized constituent of asphaltic bitumen,[16] but there is a variation in the ease with which different asphaltenes will oxidize, depending on the source and treatment of the asphalt. The oxidation of the asphaltenes produces carbenes and carboids. Lewis and Hillman[19] have shown that the asphaltene content increases when an asphalt is exposed to weathering conditions, which is concordant with other evidence.[16] Asphalts can not only be oxidized at the surfaces exposed to the atmosphere but also at the mineral-asphalt interface by the air which is adsorbed on the mineral surface, and also at a water-asphalt interface due to dissolved air in the water. Oxidation may be retarded by substances which act as negative catalysts or inhibitors.

The effect of time or aging on asphalts has been attributed to various causes which involve a change in the internal structure and which necessarily would involve the surface structure. The actual phenomena which are involved in ageing has not been definitely agreed upon. Sol-gel transformations may be taking place, or a gradual orientation and blending effect may be occurring, or actual chemical reactions may be going on. There are undoubtedly a combination of internal changes occurring.

Research on the temperature susceptibility of asphalts has been extensive, and has been directed to determine causes and remedies. It has been stated[17] that when asphalts are susceptible to temperature changes the oily constituents are mostly aromatic hydrocarbons. Blending, including changing the proportions and types of oily constituents, resins, and asphaltenes, has been the principle

(Continued on Page 59)



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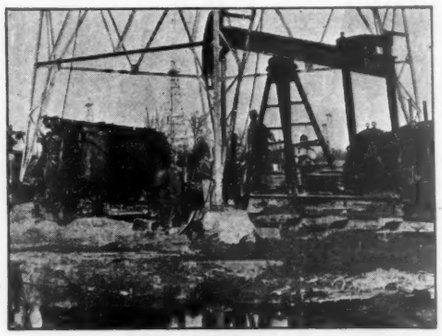
Pure Uses Tapered Seats for Casing Illinois Wells

BY HARRY SIMONS

The advance in rotary drilling methods has for the most part been due to the development of the new processes and techniques, but occasionally a new method is introduced which is really a successful adaptation of an older process. Pure Oil Co. has improved on an old practice to the point where they are successfully running casing in wells in the Illinois basin area without the use of cement behind the pipe. By a concentrated study of the conditions of the problem, Pure's production department, under the direction of C. M. Harden, has devised a tapered seat (Figure 1) for the casing which makes the "landing" of the string of pipe possible.



Drawworks and steam engine have been skidded out of the way to make room for the pumping unit of one of Pure Oil Co.'s wells near Noble, Ill.

The pipe pattern was a part of the cable tool drillers' equipment; with the depth of the prospective producing horizon in view, the driller started a hole of adequate size to allow for the setting of several strings of pipe. When adverse conditions were encountered, pipe was set to case off the water, caving hole or gas sand. The casing was generally set on a hard formation and the top held by a spider; the size hole was then reduced and the operations carried to greater depths. Completion of a well generally required a water string and a pay string of pipe.

Rotary holes were originally cased without the aid of cement, the mud in the hole acting as a protection for the pipe and helped effect a seal between the pipe and the formation on which it was landed. Failures of pipe were frequent and water from sands above the casing point found its way into the producing horizon. Drillers in their efforts to get water shutoffs would either drive the casing or spud it into the landing formation with no little damage being done to the pipe; casing strings were often found to have parted due to this rough treatment.

Cable-tool drillers attempted to make an effective seat by holding a tight line while drilling and thus reducing slightly the size of the hole. Numerous types of shoes were introduced, one of the most effective being the barrel shaped.

Cementing of casing in wells was started to reinforce the pipe, decrease corrosion due to acidic ground waters and to aid in sealing water from the pay sand. The dump bailer was an effective method of getting the cement into the bottom of the hole after it had been mixed with water on the derrick floor. Batches of cement ranging from 10 to 600 sacks were run in wells by this method; after the cement had been placed on bottom the casing was filled with water elevated about 40 feet, the top was closed with a plug, and then the pipe lowered to the casing point. The cement was thus forced out of the pipe and up around the outside of it. In case it was impossible to fill the pipe with water, a plug was run in on the bailer and then the pipe was filled.

Tubing Method

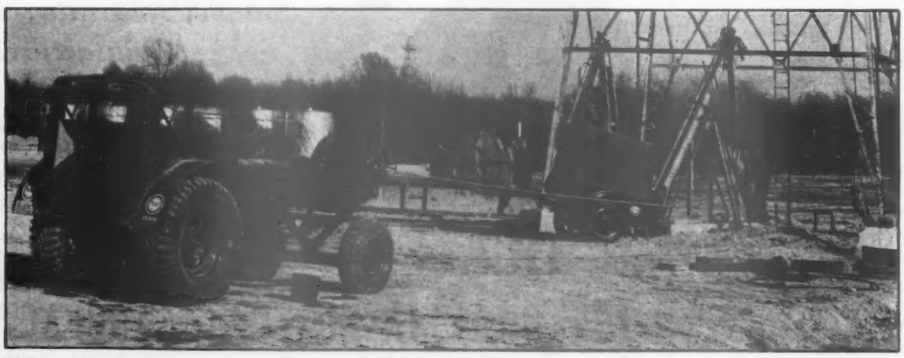
Cement was also placed on bottom by use of the tubing, the cement being mixed on the ground and then pumped down through it, packer being used to seal the annular space between the casing and the tubing. Original attempts to cement through the casing met with trouble as casing strings often parted due to excessive pressures required to move the cement. Two methods were being used between 1915 and 1920, one calling for the use of a plug before and one after the cement slurry and the other omitting plugs altogether. Several devices for mechanical mixing of the cement and the pumping of the slurry down the hole were being perfected but the running of cement was a job that frequently met with disaster. From ten days to two weeks and occasionally as much as a month were allowed for the cement to harden. From 72 hours to 7 days is now considered long enough.

Since those early days better equipment has been developed and the method used now, which includes a float shoe on the bottom of the casing and one plug used to follow the cement, seldom fails. Better cements have been developed including those that set rapidly, those that set slowly, and those that are resistant to corrosion due to ground waters. Cementing technique and equipment have been developed to the point where practically any kind of job utilizing slurry can be accomplished, including circulation of the cement, squeeze jobs, etc.

An E-60 power unit pumping Pure Oil Co. well near Cisne, Ill., in which casing was landed without use of cement

With the development of a satisfactory seat, Pure's method eliminates the use of cement in its casing jobs. In addition to the development of the landing procedure, several factors have made the success of this practice possible: Better pipe for casing use which does not require reinforcing, the demonstration that neutral mud weighted fluid is an aid in corrosion prevention, and the geologic conditions in the central part of the Illinois basin. The main point in the success of the accomplishment is the tapered seat which Pure devised.

Old cable-tool drillers were on the right track when they attempted to swage the hole by holding up on the tools, thus drilling the hole at the casing point as small as possible. When Pure started to use this method they had not yet developed the tapered seat. Two methods were tried and found to be unsatisfactory. The first was the reducing of the hole at the point selected for a casing seat from 8¾ to 6¼ inches. This was found to be unsatisfactory as there was some leakage due



One of Pure Oil Co.'s rod and tubing gangs prepare for a job on a well near Cisne, Ill.

to pipe not centering in the hole when it was run. Attempts to land the pipe and then reduce the hole were discarded as impractical for a similar reason, the smaller hole frequently being drilled off center within the pipe. (Figure 2.)

The method as now used calls for the making of a 3-foot seat tapered from 8¾ to 6¼ inches on which the casing rests. This is done with a special tapered drag-type reamer with hard facing on the cutting edges. The reamer can be rebuilt whenever it becomes out of gauge due to continued use.

Drilling into the pay formation is done before the pipe is run, the making of the casing seat and the centering of the smaller hole taking place as soon as the casing point is reached. The Rosi Clare lime in the top of the Ste. Genevieve is the formation selected for the casing landing point. It is a very hard, brown, sandy to oolitic limestone and a geologist is present to identify it. As soon as it is determined that the proper point has been reached, the driller comes out of the hole and installs the tapered reamer and a 6¼-inch bit and returns to bottom with the pipe and makes 3 feet of hole which gives him 1 foot of the 6¼-inch hole and 3 feet of tapered hole from 8¾ to 6¼ inches. The 6¼-inch tapered hole is automatically centered by the stiff reamer fitting the 8¾-inch hole above. Drilling and coring is then continued in the 6¼-inch hole to the pay formation.

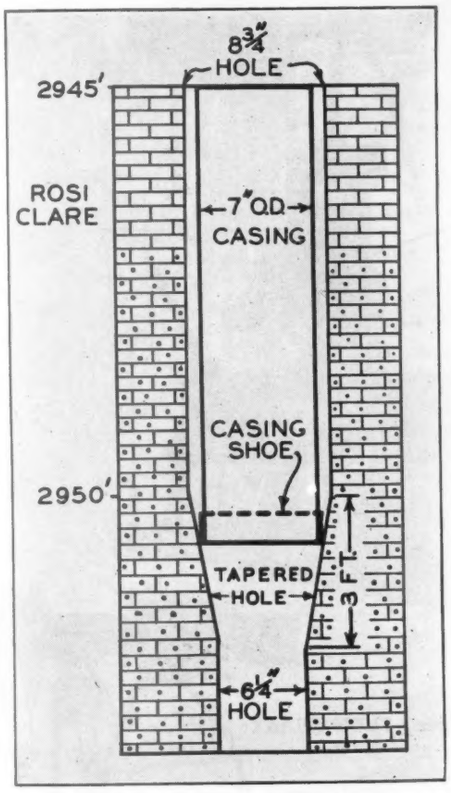


Fig. 1—Diagram of tapered casing seat showing how the large and small holes are aligned and a satisfactory water shutoff obtained

Mud Conditioned

After the pay is reached and it is decided to stop drilling, the pipe is laid down and the 7-inch O.D. casing run in the hole with a plain shoe on the bottom. The mud is preconditioned starting at 2,500 feet and by the time the casing point is reached has a weight of 10.2 pounds per gallon and 40 viscosity. Heavying the mud aids in sealing off the producing formation immediately around the hole and prevents any considerable amount of fluid from traveling very far through the lime. Conditioning of the mud also aids in the prevention of corrosion due to ground waters which frequently contain sulfur and sulfur compounds. Circulation is maintained until most of the cuttings in the hole have been removed and the pipe is then lowered on to the seat. The plain casing shoe fits solidly in the tapered hole with most of the weight of the pipe resting on it.

As one roughneck expressed it, "The boom is on just as soon as the pipe hits bottom." There is no shutdown time while waiting for cement to set. Instead, the drilling crew immediately starts to connect up flow lines and blowout preventer after which tubing is run and the drilling line replaced by a swab line. Some wells have been completed by first swabbing the casing; this has an advantage in that it gives a test for the water shut-off of the casing job. Present practice is to run the tubing with an open end where it is desired to swab to the bottom of the hole; if the well is expected to have a good initial flow, the working barrel can be placed on the bottom of the tubing, thus eliminating an extra trip.

225 Casing Jobs

Of the 260 wells drilled by Pure in the central part of the Illinois basin, 225 were completed by this method. The other 35 were either dry holes or were producing wells that were cemented, one of the reasons being the passing of the point selected for a casing seat, the only recourse left being to cement the pipe. No failures where water subsequently started to come into the wells have been recorded on wells that were completed for good producers or did not require further acid treatment. One light well required cementing after it had been completed for several months but damage to the casing was believed to have occurred while acidizing the well.

Failure of the seat to hold puts the well owner in no worse position than he was before, as the expense of remedial work would be only that which he would have incurred had he completed the casing job by running cement behind it.

This procedure lends itself to the testing of wells as the casing can be withdrawn after attempts at production have shown operators the condition of the prospective pay. It also assures recovery of practically the entire string of pipe when it comes time to abandon a well. Besides this there is the substantial saving in time accruing from this method and the elimination of the cost of cement and cementing.

With the strength of the pipe available today and conditions similar to those in Illinois, this method could be used elsewhere. The Rosi Clare lime has a low porosity and is quite massive in structure and makes an excellent seat. While the water below 200 feet generally contains considerable mineral and chemical matter, the mud placed behind the casing has so far proven a satisfactory protection for it. Low pressures in the pay formation also contribute to the possibilities of the method as high gas pressures and volumes are lacking in the Illinois basin. Pure has proven its success in that area but whether it will be adopted elsewhere will depend to a great extent on the conditions prevailing in newer fields.

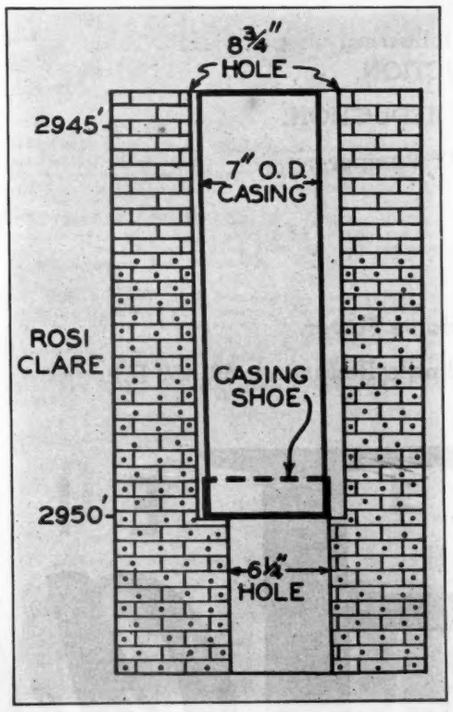


Fig. 2—Imperfect alignment of holes characteristic of flat casing seat; water may be expected to break through between casing shoe and seat

ASPHALT

(Continued from Page 55)

method used to change the susceptibility properties of asphalts.

Acknowledgment

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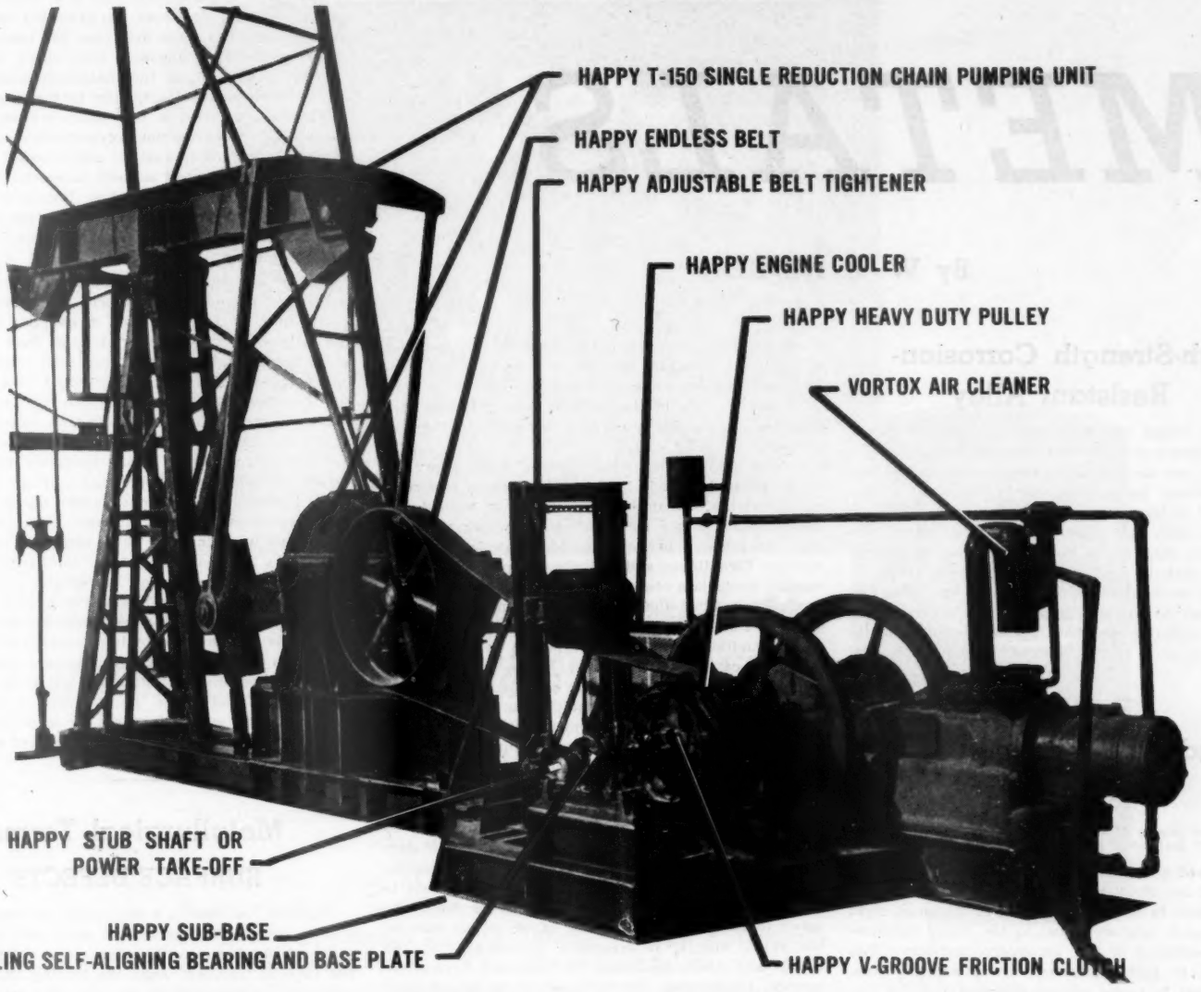
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VORTOX AIR CLEANER
HAPPY STUB SHAFT OR POWER TAKE-OFF
HAPPY SUB-BASE
HAPPY RING-OILING SELF-ALIGNING BEARING AND BASE PLATE
HAPPY V-GROOVE FRICTION CLUTCH

HAPPY T-150 SINGLE REDUCTION CHAIN PUMPING UNIT Provides excess durability and strength, assuring long life and trouble-free operation. Chain reduction unit built into cast iron case, main shaft supported on long bronze bushed bearings. Shaft fully supported. High speed shaft mounted on Timken Bearings, positive oil circulation, with oil filter optional for positive cleaning and filtering of case oil. Diamond chain used of special alloy steel, heat treated. Sprockets accurate machine cut teeth. Interchangeable feature permits change in horsepower if desired without foundation or other changes. HAPPY is the long life unit.

HAPPY ENDLESS BELT HAPPY MULTI-FLEX CORD, HAPPY STRAIGHT EDGE, HAPPY INNERSTITCHED. All three made by the Continuous Vulcanization Process—uniform thickness, every inch vulcanized perfectly.

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HAPPY ENGINE COOLER For utmost cooling efficiency of oil field Gas and Diesel Engines. Assuring freedom from scale, more uniform year round cooling. Pump has adjustable belt drive. Sturdy welded construction assures minimum repair bills.

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HAPPY STUB SHAFT OR POWER TAKE-OFF Furnished either with Timken self-aligning Roller Bearing Pillow Block or Happy ring-oiling self-aligning pillow blocks. A.P.I. bolt circles.

HAPPY SUB-BASE Welded construction throughout, uniform solid foundation. Furnished with our Units as well as built up in connection with Standard Rig Fronts.

HAPPY RING-OILING SELF-ALIGNING BEARING AND BASE PLATE This Pillow Block is extra heavy and rugged in design. Has self-aligning features which permits the corrections of inaccuracies of settings. Large reserve oil capacity and is equipped with oil wipers and oil level gauge.

HAPPY V-GROOVE FRICTION CLUTCH Proven dependable through years of successful service. Simple in design, and easy to adjust and operate, adaptable to all clutch requirements. Driving element and fulcrum wheel are furnished solid construction, eliminating spokes, giving extra strength and rigidity for oil field use.

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Progress in METALS

By W. L. NELSON

High-Strength Corrosion-Resistant Alloy

Metallic nickel has long been known for its superior resistance to many corrosive conditions but this material is not as strong as some steels and is not greatly affected by heat treatment. Recently a new alloy called Z Nickel, which contains 98 per cent of nickel, has been developed. This material has a tensile strength that is 2½ to 4 times that of regular structural carbon steel. Quenching from 2,000° F. renders the material susceptible to heat treatment and Z Nickel may be obtained from the mill in an already quenched condition so that it can be subsequently tempered in local shops to exhibit suitable physical properties.

Our Industry as Seen by a Steel Manufacturer

Quoted from pages 81 to 86 of "Agathon Alloy Steels," a booklet published by the Republic Steel Corp.

Because of a condition peculiar to the industry, the steels used are divided into two kinds. Certain products are made in modern shops under the most rigid control possible and are equal to the finest metallurgical achievements of the automotive industry. The steels used in such equipment are much the same as those used in motor car construction.

On the other hand, there is a group of tools and certain other equipment which must be handled under very difficult conditions. Field tools that must be dressed on the spot, and other equipment subject to field repair must yield maximum results, yet are handicapped by the limited facilities available for producing these results. The problem of the steel maker has been to provide steels that give results where the oil is produced. No industry makes more severe demands; no industry is forced to place machinery or tools so far from its organized bases of repair. The stress of oil production forces the crew to drive the equipment to its utmost, and the supplier must meet the conditions as presented.

The selection of steels for cable tool drilling requires contact with the fields to furnish information concerning the conditions in particular areas. In general, the hardness of the steel will vary to meet the conditions found. Hardness is also varied with the size of the bits. As a rule, the larger the bit the more foolproof the material furnished. Such steels usually are divided into three groups: Bit steels, jar steels, and general forging steels such as are used in the manufacture of special fishing tools.

The handling of bit steel in the field has been the subject of much controversy. Bit steels should be heated as slowly as possible to the dressing heat, the dressing being done at temperatures absolutely below the crumbling point of the steel. Even slight overheating is dangerous. It is vitally important that no laps occur in dressing. The dressing should be finished at a temperature low enough to insure good tough grain, but not so low as to involve much forging strain. The quenching operation should be carried out in proper slack tubs and a careful study made of the handling of each bit and the amount of hole obtained. Controlled treatment appears impossible on the derrick floor and the life of the bit really depends upon the selection of the bit steel and the skill of the tool dresser.

Steels used in the manufacture of drilling jars differ from the bit steels in some of the more important characteristics. Because jars usually are welded, the dependability of the steel during the welding process must be made a primary consideration in its manufacture. Cleanliness and definite composition are essential. Some jars are made by forging the interlocking parts, rather than by welding, and these steels also must be made with the utmost of care.

In handling welds of any type the skill of the operator is of prime importance. Fires must be kept clean and in proper shape. The flux and its use must be adapted to the peculiar conditions of each shop. To insure actual contact of the metal, the surface scale and dirt are dissolved by heat and flux and then removed by forcing to the surface during the welding operation.

After welding it is desirable to heat-treat the reins of the jar and the most satisfactory treatment is to oil-quench and draw. To accomplish this the jars should be heated to 1,550° F. (light cherry scaling heat), soaked for sufficient time to allow the heat to penetrate, and then quenched in oil. Care should be taken to insure free circulation of oil on all sides of the reins, and it is especially important that the crotch and knocking heads be hardened during the quench. In drawing, the jars should be heated at a temperature high enough to insure toughness, 700 to 900° F. being sufficient.

General tools, such as those used for fishing, are usually made from high-grade forging steels and the treatment is governed by the service. Such tools should be discussed only as special cases and the recommendations made for a definite set of conditions.

Without the remarkable improvement in drilling equipment which has taken place in the past few years, it is doubtful if sufficient oil could be produced to meet our ever-growing requirements. It is now possible to drill wells ranging from 6,000 to 10,000 feet in depth. Several have been drilled to depths exceeding 10,000 feet and in one case, exceeding 12,000 feet.

The bit must be accurately loaded and this load must be transmitted through a rotating drill pipe made up of short lengths. Through this a mud-water mixture is pumped at pressures exceeding 10,000 pounds per square inch. Try to visualize the action of rotary drill bit operating at a distance of 6,000 to 9,000 feet below the surface! Driving builds up torsional stresses. The tremendous weight of the drill stem creates tension stresses. Just try to conceive the bursting and cutting action of mud under high pressure, the bending stresses caused by crooked holes, the vibrational stresses due to power transmission and the pulsations of the mud pumps. The steel bit must stand up despite this terrific punishment!

There are few more difficult engineering or metallurgical problems than that of fulfilling the requirements of the severe service encountered in rotary drilling. Not only must the design and the manufacture of tool joints, drill collars, reamer bodies, etc., be as nearly perfect as possible, but every effort must be made to insure steel which will develop in the finished product the maximum properties necessary to insure the minimum likelihood of failure. All steels used in rotary drilling equipment carry special inspections throughout their making and are subject to tests just as rigorous as those given the special alloy steels used for airplane, motor or automotive requirements.

The manufacture of drill pipe is in itself a specialty and for modern deep-hole requirements the development of special analysis drill pipe has been necessary. These are usually manganese alloy steels, designed to develop on air cooling the maximum properties possible without sacrificing quality in manufacture.

The material used in tool joints is usually a chromium-nickel or chromium-molybdenum steel, especially made in regard to analysis and physical chemistry. The same type of steel is used successfully in kellys, drill collars and reamer bodies. Rotary drilling bits are usually made of a case-hardened steel, hard-faced with tungsten-carbide. This steel requires very careful heat-treating and control.

One of the important developments of recent years in oil field production equipment has been the trend toward alloy sucker rods used in pumping equipment. The demand for a stronger rod, made from a material which has a maximum endurance limit when used under corrosive conditions, has resulted in a decreased use of carbon steel sucker rods, and their replacement with rods made from alloy steel. The increased depth of wells caused increase in the loads on sucker rods and also increased the stroke necessary to overcome normal stretch. These conditions call for a material which has maximum strength under conditions of repeated stress even where corrosion must be combated due to salt water or salt water saturated with hydrogen sulfide. The maximum ability to distribute stresses is best assured by very low carbon materials and for corrosive conditions the addition of nickel is of considerable advantage. For these reasons there is a trend toward low carbon rod containing nickel or nickel combined with molybdenum, etc. Due to their great length, sucker rods usually are normalized but sometimes they are quenched and drawn. In an effort to prolong the service of rods, special furnaces for heat treating rods have been developed with some degree of success.

Metallurgical Terms

SURFACE DEFECTS

A "flash" or "fin" is a thin section of metal formed at the sides of a forging when a small portion of metal is forced out between the edges of the forging dies. The flash is "chipped" from the forging and the term "chipping" is also used to designate the method of removing seams and other surface defects from partially worked material so that the defects will not be worked into the finished product. A "seam" is a crack on the surface of metal which has been closed but not welded; usually produced by blow-holes which have become oxidized or rusted. A very fine seam may be called a hair crack or hair seam—and in many instances cannot be detected in a finished part without careful inspection. If a portion of the surface of a metal product consists of bits of flash or metal spatterings which are not an integral part of the main mass of metal, the piece is referred to as "cold shut." Such bits of metal may be incorporated during rolling operations.

Another surface defect is a "lap." Such a defect may appear as a seam caused from folding over hot metal, fins, or sharp corners and then rolling or forging, not welding, them into the surface.

BANDED STRUCTURE, GHOST LINES, ETC.

During the working of steel by rolling, any impurities or even the pure ferrite itself may be segregated or "drawn-out" into parallel bands which run in the direction of working. Such structures are generally referred to as banded structures. Faint light colored bands of ferrite are referred to as ghost lines, a ghost structure, phosphorus banding, or simply as a "ghost."

Most impurities are present in such small amounts that they are completely disseminated throughout the metal but occasionally banded structures of impurities may appear in imperfect steel.

"That's the only way to guarantee customers a perfect fitting Casing Shoe!"

First of all, Larkin Casing Shoes are made from the highest grade Steel obtainable, carefully forged to the correct size, with no seams or welds, then properly heat-treated to toughen without making them brittle.

But the thing of which we are the proudest—the feature which contributes most to the successful performance of Larkin Casing Shoes—is their extremely accurate *machining*. The threads are cut with a thread hob (as shown above), which guarantees a perfect thread both as to pitch and taper.

Larkin Casing Shoes do not tighten on a shoulder but on the threads; this assures a perfect fit of the pipe even though some pipe has been "shopped."

Lastly, every Larkin "Engineered" Casing Shoe is rigidly inspected by an experienced inspector; that's why, through 23 years of manufacture we've had only 2 complaints. And that's why LARKIN have made 60% of all the casing shoes used in these same 23 years!

LARKIN PACKER COMPANY, INC., ST. LOUIS, U. S. A.

LARKIN PACKER CO.

Modern Repressuring Plant in Titusville District

By J. P. O'DONNELL

Repressuring plant with coils for cooling gas

Though similar in its general principles to the many other repressuring plants in the middle district Pennsylvania fields, the modern, recently completed unit on the lease owned by Joseph E. Fleming of Titusville, Pa., in the Goodwill Hill area of South West Township, Warren County, employs several peculiar features which make it distinctive. These features were incorporated in the construction by George W. Miller, superintendent, who designed the plant with the purpose of attaining as "smooth" operation as possible.

The plant is built on three different levels, employs a gravity feed water supply system, avoids acute right angle turns as much as possible in air and gas lines in and around the plant, incorporates a unique exhaust arrangement that has been responsible for cooler operation and reduction of noise and vibration, enriches the gas before it enters the field line and has expansion bends in the coolers.

Building the separate units on different levels made it possible to employ a gravity feed water system. The water pit, measuring 15 by 20 by 5 feet, is constructed entirely of concrete and is surrounded by a heavy wire fence. It is located some distance away from and higher than the plant. The pit has a capacity of approximately 250 bbls., sufficient to supply the water requirements of the plant for a period of 8 to 10 hours in the event of any difficulty in securing water from the primary source of supply.

Water is pumped to the pit from a small artificial pool which is supplied by a natural spring. From the pit the water flows by gravity to the cooling jackets of the engines. The water passes through look boxes which permit the operator to watch the volume as the control valve is altered. The water leaves the plant at temperatures ranging from 110° to 120° F. and goes to a 40-bbl. capacity "hot" well. A small Myers bulldozer pump returns the hot water to the pit where it mixes with and warms the water there, thus insuring that no cold water will reach the plant. With an ample water supply, cooling of the hot water with the 40° F. spring water obviates the need for a cooling tower. Normally water enters the cooling jackets at a temperature of 90° to 100° F.

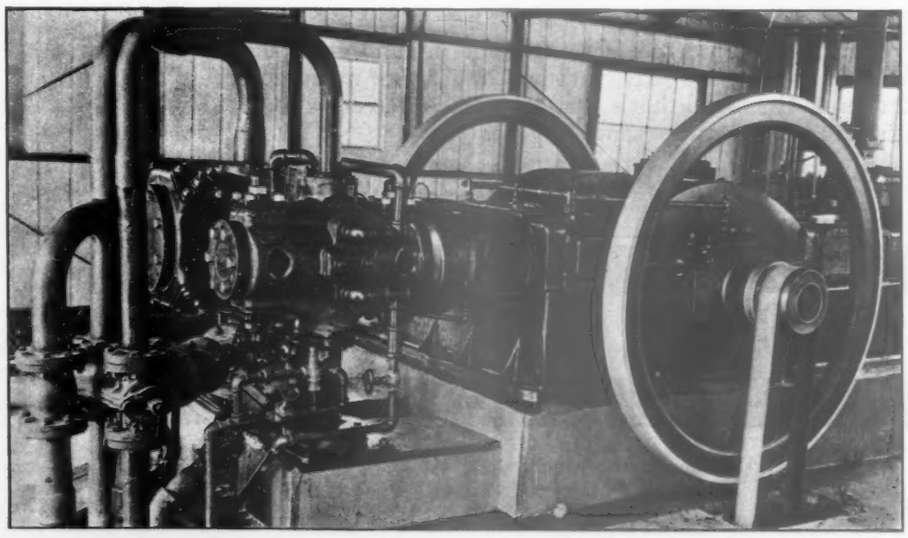
The plant itself, a 32 by 36 all-steel structure resting on a solid concrete foundation, is equipped with two Superior 100 hp., two-cycle, twin, direct-driven compressor units. These units have a throughput capacity of 450,000 feet per day with a maximum discharge pressure of 400 pounds at atmospheric intake pressure. The cylinders and governor are lubricated by a force feed oiler and other bearings are lubricated by a pump lubrication system with the reservoir mounted on the engine. One unit is operating on air and the other on gas. The two media are mixed before entering the intake wells, the mixture being made at a point about 400 feet from the plant to isolate this possible dangerous operation.

A pulley, connected by a belt to either or both engines, operates the water pump. The double connection was installed so that in case of a shutdown of one engine, the operation of the pump could be continued by the other. The pulley shaft as well as much of the interior piping are carried in the block, thus reducing the amount of exposed pipe. Acute right angle bends are avoided as much as possible to cut down on friction losses. This is a factor which is believed to be at least partially responsible for the fact that there has been no condensation between the compressors and coolers.

The units are so arranged that it will be possible to add others as the development of the property progresses. At present 13 intake wells are being supplied. Six of these are new wells drilled, since the erection of the plant, to complete rough patterns.

The exhaust arrangement, unique in pressure plants in this area, is Y-shaped. The 6-inch exhausts from the two cylinders are joined and leave the building through one 12-inch line. The latter vents upward at a 45-degree angle into a 30-inch vertical pipe set on a concrete foundation. Not only has this arrangement been successful in reducing vibration and noise, but it has also resulted in cooling the exhaust pipes considerably. This arrangement results in part from the Y arrangement of the exhausts. The exhaust from one cylinder blows by the opening of the other in such a way as to cause a jetting action and in so doing creates a partial vacuum in the latter, drawing the heat from it.

The air or gas is raised from atmospheric pressure to a pressure of 40 pounds per square inch in the initial stage and in the second to 250 pounds per square inch. Both compressed air and gas pass through oil traps, equipped with water takeoffs before entering the intercoolers and aftercoolers. The coolers are 40 feet in length with an inclination of 1 foot and are equipped with expansion bends, another novelty in district plants. All liquid collected in the cooler drains to an underground reservoir. Water is taken off several times a day but the natural gasoline is removed only about twice a week from the main reservoir, which consists of 30 feet of 16-inch pipe. The reservoir really has two sections, water accumulating in a vertical pit beneath the lower end of the cooler and the gasoline in the higher, horizontal 16-inch pipe. The circulating gas passes through the gasoline reservoir and enriches itself before passing on into the field lines. The success of this method is shown in its effect on the gravity of the gasoline taken from the reservoir. The longer the gasoline is allowed to remain under ground the lower its gravity becomes.



One of two direct-driven compressors in Fleming repressuring plant

QUESTIONS ON TECHNOLOGY

By Charles K. Francis, Ph. D., Technical Editor

Regular Grade Mexican Gasoline Compared With U. S. Gasoline

Kindly inform me how the regular Mexican gasoline compares with the regular U. S. gasoline. Does it contain harmful constituents which may injure an internal combustion engine? If the gasoline of Mexico is below standard are there any practical methods to improve it?—J. J. D.

Mexican gasoline appears to be lacking in quality in three respects, initial boiling point, sulfur content, and octane rating. The initial boiling point is too high for good starting quality, the sulfur content in many instances is too high, and the octane rating is low.

The characteristics of several Mexican gasolines, as made from representative crude oils, have been reported by J. McConnell Sanders, from which the data following have been arranged.

PROPERTIES OF MEXICAN GASOLINE
(All temperatures °F.)

	Gasoline				
Crude oil from—	Gravity, A.P.I.	I.B.P.	F.B.P.	Sulfur, per cent	Octane No. C.F.R.
Panuco	58.7	156.2	363.2	0.06	56
Naranjos	60.0	118.4	404.6	0.11	43
Poza Rica ...	67.5	104.0	320.0	0.05	52
Tonala	62.1	120.2	406.4	0.05	57
El Plan	64.5	113.0	356.0	0.05	54
Filisola	63.4	145.4	341.6	0.04	59

The sulfur shown here is much lower than that frequently found in the commercial product. A sample of gasoline from a government refinery had these properties: Gravity, 58.2; I.B.P., 106° F.; 10 per cent off at 156° F.; 20 per cent at 190° F.; 50 at 284° F.; 90 at 371° F.; endpoint, 395° F.; sulfur content, 0.22 per cent.

Analyses showing gum content are not available. The only substances of a harmful nature contained in some gasolines are gum and sulfur. It is presumed that refining processes now available are adequate for reducing the sulfur content to standard requirements, which in the United States is 0.1 per cent.

Government regulations control the retail price of gasoline and limit any premium selling price to the addition of one centavo (one-half U. S. cent) for an increase of each five octane numbers. This is not sufficient to cover the increased expense for the required tetraethyl lead to bring the gasoline to the same antiknock quality as United States motor fuel. It is reported that there is no Ethyl gasoline on sale for motor use in Mexico. Aside from octane rating, the gasolines examined are deficient in volatility, which could be corrected by the addition of natural gasoline.

Reference: J. McConnell Sanders, Science of Petroleum, Vol. 2, Page 868.

Cobalt-Thorium Catalyst Adsorbed On Kieselguhr Foundation

Can you give us some information relating to the nature of a catalyst which is said to contain cobalt and kieselguhr? How is it used? What is kieselguhr?—E. W. R.

Cobalt is an important catalyst made use of in several industries, and kieselguhr is extensively used as the foundation material for many catalysts. In an article in The Oil and Gas Journal, concerning the syntheses of hydrocarbons, Nissan describes several forms of cobalt-kieselguhr catalysts. Among these the cobalt-thorium-kieselguhr combination is mentioned as probably the most active. "This complex is prepared by precipitating the oxides on kieselguhr and then reducing with hydrogen. It gives 110 gr. of liquid hydrocarbon per cubic meter gas, falling off to 80 per cent of this yield after 60 days, the theoretical yield being 180 gr. of liquid hydrocarbon per cubic meter of gas. This diminution in efficiency was due to wax collecting over the surface area of the catalyst. As much as 180 per cent of wax based on the weight of catalyst used was collected in one instance. Extraction of the wax would regenerate the catalyst.

"It was also observed that copper added to iron or cobalt facilitated the initial activity of the catalyst in as much as lower temperatures were required for the reduction of the oxides. On the other hand, copper was found to be detrimental to nickel catalysts. Again, the addition of small amounts of alkalies increases the proportion of gas to other hydrocarbons synthesized. For efficiency and reactivity the catalyst should be carefully prepared according to definite procedure and kept from contact with poisons and inhibitors. These remarks are not exhaustive, for chromium, zinc, beryllium, rare earth metals, uranium, silicon, magnesium, manganese oxide, active and amorphous charcoal were tried in conjunction with the transition elements (iron group). The catalytic efficiency decreases in the order given. The function of secondary substances (either phosphorus, arsenic or sulfur) added to the catalyst was to combine with any free iron which may be formed and thus prevent side reactions promoted by the free metal."

Kieselguhr, also known as infusorial earth, diatomaceous earth and tripoli powder, is a natural product, essentially the remains of diatoms. The deposits may contain iron, sand, clay, and other materials so it is usually purified for commercial use. It is very light, having a specific gravity ranging from 0.24 to 0.34, with high adsorbing power. Infusorial earth is extensively used in the manufacture of dynamite, polishing powders and as a filtering medium.

Reference: A. H. Nissan, Thermal Catalysis of Carbon Monoxide and Hydrogen, The Oil and Gas Journal, July 28, 1938, Page 89.

CHEMICALS FOR THE PETROLEUM INDUSTRY

Trichlorethylene

Use—Solvent for oils, fats, waxes, and dewaxing of oil.

Form—Non-flammable colorless liquid.

Formula—ClCH.CCl_3.

Molecular weight—131.38.

Specific gravity—1.4655.

Boiling point—188° F.

LIMITATIONS

Free chlorine, per cent	None
Specific gravity max., per cent	1.48
Distillation at 190° F. min., per cent	95
Acidity max. as HCl, per cent	0.001

Determining Alkali and Sodium Acid Sulfide in Waste Doctor

Will you kindly give us the details of the ammoniasilver method for determining the NaSH content of spent doctor solution?—F. E. Y.

Sodium acid sulfide is seldom determined in spent doctor solutions for the reason that the test for alkalinity is quickly made by the addition of a drop or so of phenolphthalein indicator solution to a small quantity of the doctor solution. When the NaSH is determined it is simply confirmatory, because if there is any NaOH present there can be no NaSH.

The U.O.P. mehod for the analysis of refinery caustic solutions includes the determination of sodium hydroxide and sodium acid sulfide. The reagents are: Standard sulfuric acid 0.5 N strength: methyl orange, ammoniacal silver nitrate solution, made by dissolving 87.07 gms. silver nitrate in distilled water. Add 250 ml. conc. ammon. hydroxide, then dilute with distilled water to 1 liter.

Alkali determination: Weigh 50 gms. of the caustic solution into a 1 liter flask dilute to mark with water. Pipette 25 ml. of this solution into a 400 ml. beaker, add 3 drops methyl orange indicator, titrate quickly with 0.5 N sulfuric acid to pink. Note result as preliminary. Pipette another 25 ml. of the caustic solution into a 400 ml. beaker, add rapidly 1 ml. less of the 0.5 N acid than required for the preliminary titration. Cover the beaker with a watch glass, boil off the gas, cool, add 2 drops methyl orange and titrate to exact endpoint. Repeat. Calculate to Na_2O.

Sulfide determination: Pipette 25 ml. of the caustic solution into a 400 ml. beaker. Titrate with the standard ammoniacal silver nitrate solution. The endpoint being when a drip of the silver nitrate solution remains as a clear colorless spot surrounded by the brownish or black solution.

Calculations:

(*a*) Calculate the total alkali in the sulfuric acid titration to Na_2O. 1 ml. 0.5 N H_2SO_4 = 0.0155 gm. Na_2O.

(*b*) Calculate the sulfide titration to Na_2O. NaOH and NaSH cannot exist together. Hence Na_2O from (*a*) minus Na_2O from (*b*) equals Na_2O as NaOH. If (*b*) is greater than (*a*), then the difference is Na_2O as NaSH.

(1) $Na_2O \times 1.2906 = NaOH$.

(2) $Na_2O \times 1.8064 = NaSH$.

Since 1.25 gm. sample is titrated, the per cent by weight is:

(1) $$\frac{\text{gm. NaOH} \times 100}{1.25} = \text{NaOH per cent (weight)}$$

(2) $$\frac{\text{gm. NaSH} \times 100}{1.25} = \text{NaSH per cent (weight)}$$

Reference: U.O.P. Laboratory Test Method for Petroleum and its Products, page 54.

Questions on Petroleum Technology may be sent to Dr. Charles K. Francis, The Oil and Gas Journal, Tulsa, Okla. When a copy of the answer is desired, postage should be included.

PROBLEMS FROM READERS

Edited by L. G. E. Bignell

Blowouts—Causes and Prevention

I have read with interest some articles in The Oil and Gas Journal about oil and gas well blowouts and the methods taken to bring the wells under control. Is there anything published on this subject covering the various phases of cause and remedy?—D. E. I.

The question you ask covers a rather broad subject and the cause of blowouts may vary according to the location of the wells and the methods used in bringing the well under control will likewise be changed to suit the conditions found at the well. However, there have been many blowouts in wells drilled along the Gulf Coast and Charles B. Carpenter, petroleum engineer with the U. S. Bureau of Mines, Dallas, Tex., made a rather intensive study of causes of blowouts during drilling and means of prevention, with special reference to the Gulf Coast region and his findings are published as Information Circular 6938, and copies may be obtained by writing the Bureau of Mines, Washington, D. C.

Definition of Terms

The terms "blowout," "wild well," and "crater" are frequently used without strict distinction. The following definitions are given to make clear the author's use of these terms in his report:

A "blowout" is a sudden expulsion of drilling fluid (mud, water, and sometimes oil) followed by an uncontrolled flow of oil, gas or water from an incompleted well that occurs when the pressure of oil, gas or water entering the hole at some depth is greater than the pressure exerted by a column of drilling fluid in the well.

A "wild well" is a well that is out of control and flowing oil, gas or water without restriction as a result of a blowout or failure of control equipment or casing. The gas and oil may become ignited, or a wild well may become a crater.

A "crater" is a basin-like opening in the earth's surface surrounding or adjacent to a well caused by the erosive and eruptive action of the gas, oil and water flowing without restriction.

Petroleum and natural gas, as found in the earth, usually are confined under pressure in the pores of sedimentary rocks, such as sandstone and limestone. In most types of producing structures the initial pressure of the oil or gas at a given level depends upon the difference between (1) the "head" of the water acting upward against the oil at the oil-water contact (or against the gas at the gas-water contact in structures that contain no oil) and (2) the "head" of the hydrocarbon fluids between the oil-water (or gas-water) contact and the given level. Structures in which the virgin pressure of the oil or gas at a given level is approximately equal to the hydrostatic pressure (depth in feet multiplied by 0.434 pound per square inch) of a column of water extending from the well head to that level are said to have "normal" pressures. Such pressures are to be expected if the porous rocks of the productive stratum are full of water between the oil-water (or gas-water) contact and an outcrop of that stratum at the approximate elevation of the well head, provided the head of the hydrocarbon fluids between the oil-water (or gas-water) contact and the given level does not differ greatly from the head of a column of water of equal height.

If the porous productive stratum crops out at an elevation that is lower than the well head, an oil or gas pressure less than the pressure of the column of water extending from the well head to the productive level is to be expected. Such pressures, termed "subnormal," are found in many producing areas. Conversely, in many structures the initial pressure of the oil and gas at a given level is "abnormal," that is, it is greater than the hydrostatic head of a column of water from the well head to that level, often because the oil- and gas-bearing bed in the area outside its productive part is full of water to an outcrop that lies at a higher elevation than the well head.

Methods of Drilling

High-pressure oil and gas areas usually are drilled by the rotary method. Mud-laden fluid is circulated by means of "slush" pumps and passes down the inside of the drill pipe and up in the annular space between the drill pipe and walls of the hole until it reaches the surface and is discharged into pits.

The functions of the mud-laden drilling fluids are to remove cuttings from the hole; to hold solids in suspension when drilling is stopped; to provide a mud sheath on the wall of the hole, and thereby retard the infiltration of drilling water which causes cavings and sloughing; to seal off minor oil-, gas-, and water-bearing formations; to suppress formation pressures by the hydrostatic head of the fluid column; to lubricate the bit and drill pipe and to cool the bit.

Virtually all information on drilling fluids is based on one or more of the following physical properties: Specific gravity or weight per unit volume; mechanical analysis of fineness of contained solids; and consistency, which includes determinations of viscosity, plasticity, fluidity, mobility, yield point, and shearing strength. The weight of mud fluid is determined by weighing a given volume, on a spring scale or by a special mud hydrometer which measures the displacement of water when a small closed cup filled with drilling fluid is submerged in a jar of water.

The quantity of noncolloidal solid materials in drilling fluids is determined by mechanical analyses. Settling or centrifuge tests are usual procedure although coarse material is screened.

The consistency of drilling fluids usually is expressed in terms of viscosity or plasticity. Viscosity is the resistance offered by a fluid to the relative motion of its particles.

Good drilling fluids containing clay have predominating fluid characteristics when in motion and are plastic when at rest. The change from a fluid to a plastic is due to gel-forming colloidal matter present. The degree of plasticity or gelation is called the gel strength.

Causes of Blowouts

When a drill bit reaches a gas- or oil-bearing stratum under high pressure, the suppression of formation pressure becomes the most important function of a drilling fluid, and its weight should be controlled carefully. A drilling fluid weighing 10 pounds per gallon (specific gravity 1.2) exerts a pressure of 0.52 pounds per square inch per foot of height and generally will control all normal formation pressures with a margin of safety.

If the hole is kept full of the proper weight drilling fluid the pressure encountered in formations penetrated by the drill will be controlled. If the fluid level is lowered or the weight of the drilling fluid decreased, the pressure exerted by the fluid column at the base is reduced accordingly. The fluid level may be lowered by withdrawal of drill pipe, bailing or swabbing, or by infiltration of water making up the drilling fluid into crevices and caverns. When the formation pressure at any depth in a well approaches the corresponding hydrostatic pressure of a column of water, a slight lowering of the fluid level may be sufficient to upset the pressure balance and cause the drilling fluid to be blown from the hole. This is one manner in which blowouts occur.

Drilling fluid intermixed with gas is said to be "gas-cut." Gas can be intermixed with drilling fluid by simple mixture, absorption or solution of the gas in the drilling mud, and adsorption on the surface of, or in the pores of, the solids in the drilling fluid. Drilling fluids of high viscosity tend to become gas-cut; they release the entrained gas slowly in the ditches or at the surface and unless properly aerated may be recirculated in the well while subnormal in weight. By maintaining a drilling fluid of low viscosity, admixed gas can be released, usually by vibrating screens or by allowing the drilling fluid to flow over baffles or in a thin layer through the ditches and slush pits. The drilling fluid may also be pumped through nozzles or sprays to aerate it and at the same time mix it more thoroughly.

To prevent blowouts while drilling, the two principal causes should be corrected. They are inadequate weight and improper consistency of the drilling fluid. These preventive measures may be classified as follows: Pressure-tested casing properly cemented; high-pressure fittings; dependable blowout preventers; quick-closing valves for flow line and drill pipe; large capacity, high-powered slush pumps; adequate power and ample supply of drilling fluid in reserve pits.

If the drilling fluid has low viscosity and low gel rate, the cuttings frequently settle out and pack around the drill bit or drill pipe collars when circulation is interrupted, and when the drill pipe is withdrawn, a swab action is induced which may cause drilling fluid to flow out of the hole and reduce the pressure of the column. If 10-pound mud is used this reduction in pressure will equal 90 x 0.52 or 47 pounds per square inch for each stand of drill pipe withdrawn. Swab action not only lifts drilling fluid from the hole but also permits gas from the formation to fill the evacuated part of the hole below the drill bit. When the swab action ceases the drilling fluid drops to the bottom of the hole and the gas that was drawn into the hole mixes with the mud and displaces an equivalent volume of the drilling fluid and lightens its weight. When the weight of the mud column is lowered to a pressure below that of the pressure of the formation being penetrated it is possible for the mud to be blown out of the hole and the well go out of control.

This swabbing action incident to the withdrawal of drill pipe may be reduced by circulating drilling fluid for 30 minutes to an hour prior to withdrawing the drill pipe from the hole, an operation that always should be performed slowly.

Stability of clay dispersions in a drilling fluid is extremely important, since the fine particles or colloids are employed to suspend the solid materials. Frequently this stability is disturbed by the precipitation action of electrolytes, and chemical treatment of the drilling water is required.

FIELD OPERATIONS

Summarizing the Week's Developments

KANSAS—A well one-half mile south of the Silica field, and one-half mile north of South Silica pool, in Barton County, was showing as a producer and connecting link between the two areas. Simpson sand production was uncovered in the Greenvale pool, Russell County, other production being from Lansing lime. Extension wells were near completion in the Edwards and Wilkins areas, Ellsworth County; the Robbins pool, Sedgwick County, and Keesling pool, Rice County.

OKLAHOMA—Production was proven in a new area in western Pottawatomie County between the Maud field in Pottawatomie County and Carr City area in Seminole County. Wilcox sand production was found in Viola lime southwest of St. Louis, Pottawatomie County. The Citra pool opener in Hughes County was plugged back when oil production declined, and was recompleted as a gas well. An offset to the discovery well in the Meridian pool, Logan County, was showing oil in dolomite and another offset was drilling ahead after finding water in first Wilcox sand.

TEXAS—In North Texas the Canyon pool, opened in Wichita County, was extended into Archer County by Shappell Oil Co. The 4,200-foot production in the Hull-Silk pool was extended 1,000 feet. The Navarro Crossing pool in Houston County, eastern Texas, was extended 1½ miles by a 138-bbl. well. New sand discoveries in proven fields and pool extensions were all the Southwest Texas fields had to offer, but in Jefferson County, in coastal Texas, a new pool is in sight. The Slaughter pool in Hockley County, West Texas, was given a 2-mile extension. A deep test in Pecos County struck sulfur water at 3,668 feet and was abandoned. Two new sources of oil were opened in Jones County, one a new pool 2 miles southwest of the Avoca pool, and the other a deeper pay in the Steffens pool.

LA-ARK-TEX—The first dry hole in the lower Marine defines the southwest limits of the Cotton Valley deep pool in Webster Parish, Louisiana. Two tests in the Shreveport area, in Sections 33 and 34, Township 18-14, were giving encouraging signs of becoming producing wells. The fourth well in the Magnolia pool in Columbia County, Arkansas, started at 139.5 bbls. per hour at 7,580-7,622 feet.

CALIFORNIA—Ohio Oil Co. opened a new pool in the Coles Levee district in Kern County, the discovery well starting at 826 bbls. of oil and 5,712,000 feet of gas. It was bottomed at 9,365 feet. A deeper zone was found in the Montebello field by a 500-bbl. well bottomed at 7,181 feet.

MICHIGAN—Only 10 new oil wells were brought in in the Michigan fields, the decline in completions having been caused by fear of oversupplying the Michigan market, as the new pools yield wells of large potential production. Pipe line proration in Freeman pool has reduced the runs to about 8,600 bbls. a day in that area of large producers. It is said that some oil is going out of the Allegan County fields as low as 74 cents per barrel. Posted prices in Allegan vary from 88 to 90 cents.

KENTUCKY—Another McClosky lime producing area is indicated by the showing of a wildcat 5 miles north of Birk City and in Henderson County. Seventeen feet of well saturated pay was cored in the McClosky lime.

Completions in All Fields

(Week Ending November 19, 1938)

	Oil	Gas	Dry	Total	1938 total comp. to date	1937 total comp. to date
N. Y., Pa., and W. Va.	49	6	4	59	3,165	4,183
Ohio	7	10	3	20	864	1,097
Indiana	0	0	0	0	121	107
Kentucky	15	6	1	22	807	643
Illinois	78	1	8	87	1,752	257
Michigan	10	0	8	18	823	720
Kansas	14	3	6	23	1,435	2,370
Oklahoma	12	0	7	19	1,516	2,374
Texas						
North Central Texas	24	2	20	46	2,759	2,474
West Texas	34	0	5	39	1,750	2,398
Texas Panhandle	9	3	0	12	507	721
East Texas	16	0	0	16	1,603	2,146
East Central Texas	3	1	1	5	310	648
East Texas Border	1	2	0	3	123	303
Gulf Coast Texas	15	0	4	19	1,180	1,399
Southwest Texas	26	1	7	34	1,916	2,885
Total Texas	128	9	37	174	10,148	12,974
North Louisiana	4	1	6	11	568	590
Gulf Coast Louisiana	4	0	5	9	429	405
Total Louisiana	8	1	11	20	997	995
Arkansas	1	0	1	2	216	156
Montana	2	0	1	3	98	209
Wyoming	1	0	1	2	140	97
Colorado	1	0	0	1	12	18
New Mexico	11	0	2	13	498	633
Utah	0	0	1	1	3	3
California	19	0	4	23	1,150	1,338
Total United States	356	36	95	487	23,745	28,174
Total previous week	383	50	102	535		
Week ending Nov. 20, 1937	454	62	81	597		

Outstanding Fields--Highlights

(Week Ending November 19, 1938)

FIELD—	Rigs up	Wells drlg.	Weekly oil completions	Initial prod.	Total No. oil wells	Daily av. prod.
TEXAS						
K.M.A.	24	42	4	2,759	862	16,500
Wasson-Bennett	8	28	9	7,305	177	10,498
Ector County	11	53	11	12,910	1,367	44,498
Winkler County	3	14	6	7,366	1,729	36,010
Howard-Glasscock	4	21	1	1,142	1,024	14,747
East Texas	14	41	16	849	25,805	370,697
OKLAHOMA						
St. Louis	7	28	4	1,043	720	24,500
Oklahoma City	3	8	0	0	1,094	98,425
KANSAS						
Barton County	4	18	1	693	385	10,675
Stafford County	6	16	3	3,103	202	4,538
Rice County	3	15	2	2,962	1,237	27,738
Russell County	3	20	3	3,103	202	4,538
NEW MEXICO						
Lea County	9	85	11	1,100	1,924	101,070
LA-ARK-TEX						
Rodessa, La-Ark-Tex	2	12	3	360	1,044	64,245
Cotton Valley, La. (deep)	1	18	2	690	99	10,100
Schuler, Ark.	2	19	1	375	120	18,610
Jennings, La.	0	15	0	0	124	25,337
MICHIGAN						
Freeman	6	29	3	5,000	32	8,264
ILLINOIS						
Central Illinois	70	429	78	20,459	1,667	76,487
CALIFORNIA						
Wilmington	6	13	2	1,750	582	95,350
KENTUCKY						
Birk City	1	14	4	788	96	3,126

Illinois and Kentucky

By STAFF CORRESPONDENT

78 New Oil Wells in Basin; 111 Operations Are Started

MATTOON, Ill., Nov. 21.—Seventy-eight new oil wells with a combined initial production of 20,459 bbls.; eight dry holes and one gas well, or a total of 87 completed wells, comprised the record of the Illinois fields in the past week in review. There were 111 new operations started including drilling wells, rigs up and locations staked.

Marion County led in completions with 46, having an initial production of 14,337 bbls. No dry holes were reported. Clay County's six new oil wells produced 2,559 bbls. initially. Fayette County's 23 completions included 18 oil wells with 2,459 bbls. initial production, and five dry holes. Other counties and their record for the week included Lawrence, with one dry hole and one big gas well; Clark County with one small oil well and a dry hole; Wayne County, one 505-bbl. oil well and Richland County with one 105-bbl. well and a dry hole.

The Manley Oil Corp.'s pipe line from the Lake Centralia field to Centralia is completed and P. H. Herzog, director of the company says oil will be running through the line this week. It is a 4-inch line, 12 miles long.

Magnolia Petroleum Co. No. 1 Harvey, SW SE SW Section 22-2s-1e, in Jefferson County, was reported to have pumped about 250 bbls. of oil in 24 hours. It is located southeast of the Dix pool and is regarded as a pool opener rather than an extension to the Dix pool.

In the following record of completed work the initial production given represents 24 hours unless otherwise stated:

In Clinton County, Adams Oil & Gas Co. No. 2 Stead, CSL SE NW SE Section 13-1n-1w, Benoist sand at 1,359-73 feet, shot with 5 quarts, pumped 23 bbls. Ed Robinson No. 1 Patton, NE cor. NW NE Section 24-1n-1w, Benoist at 1,368-80 feet, shot with 10 quarts, pumped 35 bbls. of oil and 15 bbls. of water. In Wabash County, Hoffman No. 1 Clyde King, NE cor. SE NE Section 35-2n-12w, Beal sand at 1,417-35 feet, pumped 60 bbls.

In Bond County, Lindsey Brothers and others No. 1 Botter, NE NE SW Section 31-4n-2w, hole full of water at 1,319-24 feet, temporarily abandoned.

In Lawrence County, Herbst and others No. 1 Pinkstaff, C NE SW Section 12-4n-11w of first meridian, hole full of water at 1,120 feet, abandoned. Heffkin No. 1 Citizens Trust, C NE NW Section 13-4n-11w, Buchanan sand at 1,111-25 feet, 16,500,000 feet of gas.

In Clark County, J. D. Judd & Son No. 1 Parker, SE cor. SW NE NW Section 29-11n-14w of first meridian, dry and abandoned at 415 feet. Ray Phillips No. 1 Biglow, CNL SE NW SE Section 31-11n-14w, 2-bbl. well at 455-75 feet, after shooting.

In Wayne County, H. H. Weinert No. 3 Morlan C. SE SW SE Section 28-2s-7e, pay at 3,306-14 feet, flowed 550 bbls. in 36 hours. Pure Oil Co. No. 2 H. Lessel, NW NE NE Section 33-2s-7e, pay at 3,325-33 feet and 3,340-42 feet, perforated with 108 holes at 3,319-43 feet, pumped 4 bbls. of oil and 59 bbls. of water.

Marion County

In Marion County, Lake Centralia area, Roberts Brothers No. 1 Pittenger, NW NE NE Section 5-1n-2e Benoist top at 1,742 feet, total depth 1,797 feet, flowed 350 bbls. Texas Co. No. 4 City of Centralia, SE NW NE Section 5-1n-2e, Benoist top at 1,759-61 feet, flowed 500 bbls. Texas No. 1 Kalkbrenner, NE cor. SW Section 5-1n-2e, Benoist top at 1,716 feet, total depth 1,770 feet, flowed 350 bbls., estimated. Ohio Oil Co. No. 3 R. L. Murray, NE NW SE Section 7-1n-2e, Benoist top at 1,761 feet, total depth 1,803 feet, swabbed and flowed 83 bbls., and then "went dead." Rockhill No. 8 Foster, SW SE SE Section 7-1n-2e, Benoist top at 1,823 feet, total depth 1,839 feet, 169 bbls. Rockhill No. 4 Foster, NE SW SW Section 8-1n-2e, Benoist top at 1,806 feet, total depth 1,829 feet, pumped 190 bbls. Texas Co. No. 4 Foster, NW NW SW Section 8-1n-2e, Benoist top at 1,772 feet, total depth 1,804 feet, flowed 200 bbls., estimated. Texas Co. No. 2 Fyke, NW NE SW Section 8-1n-2e, Benoist top at 1,809 feet, total depth 1,839 feet, flowed 125 bbls., estimated. Texas Co. No. 1 Linder, NE SW SE Section 8-1n-2e, McClosky lime at 2,090 feet, total depth 2,128 feet, flowed 474 bbls. through 1-inch choke.

Superior Oil Co. No. 1 Luttrell A, NW NE NE Section 9-1n-2e, pay at 2,068-79 feet, pumped 31 bbls. Texas Co. No. 4 Luttrell, SW SW SE Section 9-1n-2e, Benoist at 1,900-09 feet, total depth, pumped 52 bbls. Texas Co. No. 1 Bryant, Benoist at 1,875-1,905 feet, total depth, pumped 95 bbls. Kingwood Oil Co. No. 4 Devor, SW NW NW Section 17-1n-2e, Benoist pay at 1,875-98 feet, pumped 176 bbls.

Illinois Fields

HIGHLIGHTS OF THE WEEK: The Lake Centralia-Salem field in Marion County had 46 completions, all oil wells, averaging 312 bbls. per well in initial production. A local 4-inch pipe line from the field to Centralia, just completed, will help relieve the congestion in that area.

Daily production of new pools, 76,487 bbls.; old pools, 10,265 bbls. Total, 86,752 bbls.

Completed oil wells, 78; operations, including locations, rigs and drilling wells, 594.

In the Salem area in Marion County, W. S. Tatum No. 1 Bachman Brothers, a wildcat, C NE NE Section 5-2n-2e, McClosky lime at 2,177-90 feet, total depth 2,192 feet, acidized with 560 gallons, pumped 15 bbls. of oil and 100 bbls. of salt water. Magnolia Petroleum Co. No. 3 Chitwood, SW NW SW Section 16-2n-2e, Benoist top at 1,838 feet, total depth 1,890 feet, flowed 384 bbls. Magnolia Petroleum Co. No. 4 Chitwood, SE NW SW Section 16-2n-2e, Benoist top at 1,828 feet, total depth 1,872 feet, flowed 480 bbls. Kingwood Oil Co. and Bell No. 5 Shanafelt, NE NE NE Section 20-2n-2e, Benoist top at 1,774 feet, total depth 1,814 feet, flowed 370 bbls. Kingwood and Bell No. 6 Shanafelt, NW NE NE Section 20-2n-2e, Benoist top at 1,777 feet, total depth 1,816 feet, flowed 202 bbls. Ohio Oil Co. No. 2 M. J. Young, NE SE NW Section 20-2n-2e, Benoist top at 1,762 feet, total depth 1,812 feet, flowed 178 bbls. Shell Petroleum Corp. No. 4 Salem State Bank, SE SW SE Section 20-2n-2e, Benoist top at 1,731 feet, total depth 1,775 feet, flowed 176 bbls. Magnolia Petroleum Co. No. 5 Shanafelt, SE NW NW Section 21-2n-2e, Benoist top at 1,802 feet, total depth 1,884 feet, flowed 336 bbls. Magnolia No. 8 Shanafelt, NE NW NE Section 21-2n-2e, Benoist top at 1,789 feet, total depth 1,834 feet, flowed 288 bbls. Magnolia No. 9 Young, NW NE SW Section 21-2n-2e, Benoist top at 1,812 feet, total depth 1,849 feet, flowed 290 bbls. Magnolia Petroleum Co. No. 6 Young, SE SE SW Section 21-2n-2e, Benoist top at 1,811 feet, total depth 1,823 feet, flowed 489 bbls. Magnolia No. 10 Young, SW NE SW Section 21-2n-2e, Benoist top at 1,798 feet, total depth 1,840 feet, flowed 240 bbls. Magnolia No. 14 Young, SW NE SW Section 21-2n-2e, Benoist top at 1,768 feet, total depth 1,800 feet, flowed 264 bbls. Texas Co. No. 1 Young, SW cor. NW Section 21-2n-2e, Benoist top at 1,767 feet, total depth 1,818 feet, flowed 560 bbls., estimated. Texas Co. No. 2 Young, SW cor. NW Section 21-2n-2e, Benoist top at 1,770 feet, total depth 1,825 feet, flowed 525 bbls. Magnolia No. 4 Young, SW NW NW Section 28-2n-2e, Benoist top at 1,739 feet, total depth 1,773 feet, flowed 260 bbls. Magnolia No. 9 Young, NW SW NW Section 28-2n-2e, Benoist top at 1,744 feet, total depth 1,773 feet, flowed 216 bbls. Magnolia No. 11 Young, SE SW NW Section 28-2n-2e, Benoist top at 1,768 feet, total depth 1,806 feet, flowed 288 bbls. Magnolia No. 10 Shanafelt, SE NW SE Section 29-2n-2e, top of Benoist at 1,725 feet, Renault at 1,762 feet, Aux Vases 1,782-92 feet, saturated, total depth 1,809 feet, flowed 384 bbls. Magnolia No. 4 Young, NW SW NE Section 29-2n-2e, Benoist top at 1,737 feet, total depth 1,779 feet, 285 bbls. Magnolia No. 7 Young, NW NW NE Section 29-2n-2e, Benoist top at 1,739 feet, total depth 1,789 feet, flowed 490 bbls. Ohio Oil Co. No. 2 Mathew Young Heirs, SW SE NW Section 29-2n-2e, Benoist top at 1,753 feet, total depth 1,805 feet, pumped 89 bbls. Ohio No. 5 Young, NE SE NW Section 29-2n-2e, Benoist top at 1,757 feet, total depth 1,787 feet, flowed 75 bbls. Paul Tossi No. 3 Brooks, SW NE SW Section 29-2n-2e, Benoist top at 1,723 feet, total depth 1,781 feet, flowed 250 bbls. Texas Co. No. 6 Fossick, NW NW SE Section 29-2n-2e, Benoist top at 1,710 feet, total depth 1,790 feet, flowed 400 bbls. Texas Co. No. 6 Friedrich, SW cor. SE NW SW Section 29-2n-2e, Benoist top at 1,729 feet, total depth 1,770 feet, flowed 1,140 bbls. Texas Co. No. 1 Tolford, NE SE NE Section 29-2n-2e, Benoist top at 1,749 feet, total depth 1,778 feet, flowed 169 bbls. in 20 hours through 1-inch choke. Texas Co. No. 4 Wayman, SE NE NE Section 31-2n-2e, Benoist top at 1,656 feet, total depth 1,704 feet, 150 bbls., estimated. Texas Co. No. 5 Wayman, SE NW NE Section 31-2n-2e, Benoist top at 1,701 feet, total depth 1,751 feet, flowed 850 bbls. Shell No. 5 Farthing, SW SW NE Section 32-2n-2e, Benoist top at 1,720 feet, total depth 1,778 feet, flowed 475 bbls. Shell No. 6 Farthing, NW SW NE Section 32-2n-2e, Benoist top at 1,676 feet, total depth 1,733 feet, flowed 414 bbls. Wiser Oil Co. No. 4 Weems, SW NW NW Section 33-2n-2e, McClosky lime at 1,980-98 feet, pumped and flowed 375 bbls. Zephyr Drilling Co. No. 3 Lankford, NE NE SE Section 33-2n-2e, flowed 432 bbls.

Clay County

In Clay County, Pure Oil Co. No. 3 George L. Travis B, C E half SE NW Section 4-2n-8e, pay at 2,977-83 feet, with shows at 2,983-85 feet, 3,002-11 feet, and 3,040-45 feet, total depth 3,063 feet, flowed 985 bbls. (This is a corrected location.) Pure No. 1 Edens, C N half SE NE Section 5-2n-8e, pays at 2,960-62 feet and 2,985 feet, and showings at intervals from 3,013 to 3,060 feet, acidized with 5,000 gallons, flowed 216 bbls. Pure No. 8 Tetrick A, C W half NW NE Section 9-2n-8e, pay at 2,952-57 feet and at 3,000-05 feet, acidized with 5,000 gallons, flowed 392 bbls. Pure No. 4 Sol Smith A, C W half NE SE Section 9-2n-8e, pays at 2,980-85 feet, 3,022-27 feet, 3,040-45 feet, flowed 387 bbls. Pure No. 3 Daisy Bunn, C W half NE SE Section 16-2n-8e, pays at 3,000-08 feet, flowed 460 bbls.

In Wayne County, Pure Oil Co. No. 1 Zimmerman, C W half NW NE Section 21-2n-8e, pay at 2,995-3,005 feet, pumped and flowed 505 bbls.

In Clay County, Kingwood Oil Co. No. 1 Elliott, NW SE NE Section 13-3n-6e, McClosky pay at 2,968-77 feet, pumped 119 bbls.

In Richland County, Texas Co. No. 1 Winter, NE SE SE Section 27-4n-10e, McClosky at 3,104 feet, total depth 3,130 feet, acidized with 4,000 gallons and a 162-bbl. oil load, pumped 105 bbls. of oil. Wicklund

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Development Co. No. 1 Banks, NW NE NE Section 34-4n-10e, dry and abandoned at 3,130 feet.

Fayette Completions

In Fayette County, W. C. Stevenson and others No. 1 Harkless, NE SE NE Section 30-5n-1e, Benoist sand at 1,508 feet, and a hole full of water, total depth 1,580 feet, abandoned. A. J. Baxter No. 1 Sigler, NE SE SE Section 1-5n-2e, dry and abandoned at 1,836 feet, with top of Benoist at 1,797 feet. Texas Co. No. 1 Swarm, NW NE SW Section 30-6n-3e, Weiler sand at 1,576-95 feet, pumped 160 bbls., estimated. Mammoth Producing & Refining Co. and Murphy No. 1 Cooper Neal, SW SE NE Section 32-6n-3e, dry and abandoned at 1,852 feet, with Benoist topped at 1,670 feet. No. 8 Clow, NE SE NE Section 5-7n-3e, Benoist top at 1,539 feet, total depth 1,864 feet, flowed 112 bbls. J. E. Mabee No. 2 Lay, SW NW SW Section 6-7n-3e, Weiler sand at 1,433 feet, total depth 1,483 feet, pumped 122 bbls. Carter Oil Co. No. 1 Williams, NE NW SW Section 7-7n-3e, Weiler sand at 1,472-1,515 feet, shot with 20 quarts, pumped 51 bbls. Ray Brown No. 8 Hopper, NW SE SE Section 12-7n-2e, Weiler sand at 1,521 feet, total depth 1,570 feet, pumped 75 bbls. Sherman and others No. 11 Burtschi, SW NE SE Section 18-7n-3e, Benoist at 1,592-1,602 feet, pumped 50 bbls. of oil and 10 bbls. of water, estimated. Central States Oil Co. No. 2 McKenzie, SW SE SE Section 20-7n-3e, Weiler at 1,560-90 feet, pumped 200 bbls. of oil and 24 bbls. of water, estimated. Carter Oil Co. No. 1 Taylor, NW NW SW Section 29-7n-3e, Weiler at 1,522-62 feet, shot with 60 quarts, pumped 238 bbls. Shell Petroleum Corp. No. 1, NE SW NE Section 29-7n-3e, Weiler at 1,539-74 feet, pumped 137 bbls. Mabee Drilling Co. No. 7 Bank, NW NW SE Section 30-7n-3e, Weiler at 1,558 feet, total depth 1,601 feet, swabbed 126 bbls. Whisenant and others No. 4 Smith, SE NW SE Section 30-7n-3e, dry and abandoned at 1,647 feet. Weiler sand at 1,551-56 feet showed poor saturation. Carter Oil Co. No. 1 Griffith, NW SW NE Section 31-7n-3e, Weiler sand at 1,546-86 feet, shot with 30 quarts, pumped 193 bbls. Ray Johnson No. 1 Philbrook, SE SW NE Section 31-7n-3e, Weiler at 1,537-60 feet, pumped 80 bbls. Ray Johnson No. 2 Philbrook, SE cor. SW NE Section 31-7n-3e, Weiler at 1,540-64 feet, shot with 20 quarts, pumped 150 bbls. Frank Jones No. 1 Wright School, SW SE SE Section 16-8n-3e, Bethel sand at 1,585-1,614 feet, shot with 20 quarts, pumped 125 bbls. Frank Jones No. 2 Wright School, SW SE SE Section 16-8n-3e, Bethel sand at 1,583-94 feet, shot with 20 quarts, flowed 250 bbls. Carter Oil Co. No. 1 Lewis, SE SW NE Section 27-8n-3e, stray sand at 1,567-79 feet, pumped 90 bbls. Bethel at 1,591-97 feet was dry. Carter Oil Co. No. 2 Dunaway, SW NE NE Section 29-8n-3e, Bethel at 1,469-1,510 feet, flowed 192 bbls. Mabee Drilling Co. No. 3 Kepp, NW cor. SW SE SW Section 31-8n-3e, Bethel at 1,630-37 feet, salt water, abandoned. Magnolia Petroleum Co. No. 3 Clow, NE SE SW Section 32-8n-3e, Bethel at 1,525-59 feet, flowed 195 bbls. Minerva Oil Co. No. 8 Tish, NE SW SE Section 33-8n-3e, pumped 50 bbls. a day from a stray sand above the Bethel, which was topped at 1,569 feet.

Among the Wildcats

In Randolph County, American Drilling Co. No. 1 Nicholson, SW NW NW Section 12-5s-9w, had the top of the Silurian lime at 1,405 feet and was drilling at 1,430 feet.

In Washington County, L. J. Jordan was drilling below 105 feet in No. 1 Reinhardt & Scott, C S half SE SE Section 12-1s-3w.

In Bond County, J. E. Huppard and others No. 1 Dresser, NW cor. SE SW Section 21-6n-4w, was given a 3,000-gallon acid treatment at 1,810-30 feet and produced 75 bbls. of oil reported to have a gravity of 47 degrees in three days. It produces from a pay in Devonian limestone. It was not completed.

In Johnson County, Cato Elzie No. 1 Boner, C SW NE Section 30-11s-3e, was drilling at 350 feet.

In Hamilton County, H. H. Weinert No. 1 Hamilton Land Co., C S half SE NW Section 32-3s-7e, was drilling at 2,904 feet.

In Saline County, Flaherty & Waxenberg No. 1 Choisser, NE NW NW Section 5-8s-7e, had 8-inch casing set at 920 feet.

In Brown County, Fell Oil Trust No. 1 Thomas, SE cor. NW SW NW Section 15-1s-2e, was testing at 642 feet.

In Morgan County, Alexander Oil Co. No. 2 Cocksin, in Section 25-15n-9w, had a showing of gas at 315 feet, and a showing of oil at 358 feet and the crew set 4¾-inch casing at 380 feet and shut down for orders.

In Gallatin County, Bailey & Lucas No. 1 Logan, SW cor. SE NE NE Section 21-8s-8e, was drilling at 1,513 feet.

In White County, Sun Oil Co. No. 1 Brown, C N half SW NW Section 12-4s-9e, had Cypress sand top at 3,000 feet and was drilling at 3,050 feet.

In Wayne County, Al Stengle No. 1 Harris, SE NW NW Section 8-3s-9e, was drilling at 1,408 feet.

In Jefferson County, Magnolia Petroleum Co. No. 1 Harvey, NW NE SW Section 22-2s-1e, is a near completion, having flowed 113 bbls. through casing. It was being made ready for pumping.

In Fayette County, Mylius and others No. 1 Freezel, SE NE SW Section 8-6n-3e, rig up.

In Coles County, East Oakland Syndicate No. 1 W. J. Temple, SW cor. SE NE Section 36-14n-10e, drilling at 740 feet.

In Gallatin County, J. Garfield Buell No. 1 Sutter, C NW NW Section 5-8s-10e, rigging up rotary.

In Jefferson County, Benedum & Trees No. 1 Interstate Coal Co., NE NE SW Section 9-4s-2e, set 10-inch casing at 715 feet.

In Wayne County, Al Stengle and others No. 1 Harris, SE NW NW Section 8-3s-9e, drilling at 1,408 feet. Roche & Boyles No. 1 McPherson, C S half SE NE Section 4-2s-7e, drilling at 1,500 feet. Carl Robinson No. 1 Felix, SW SE SE Section 27-2s-8e, set 10-inch casing at 150 feet.

In Jefferson County, O. L. Ray No. 1 Simon Heirs, NE cor. NW Section 12-1s-3e, rigging up rotary. Minerva Oil Co. No. 1 Warren, SE SE SE Section 18-1s-4e, drilling at 1,200 feet.

In Marion County, Hull, Stauffer and others No. 1 Martin, NE NW cor. SW SW SW Section 10-2n-2e, drilling at 1,310 feet.

In Marion County, Blair and others No. 1 Eggering, NE SE SW Section 12-1n-1e, was fishing at 2,400 feet.

In Fayette County, Lindsey and others No. 1 Bowers. SW NE SE Section 36-4n-1w, was drilling at 1,165 feet. Putnam and others No. 1 Surley, C SE SE Section 35-6n-1w, underreaming 6-inch casing to 1,355 feet.

In Cumberland County, National Consumers Oil Co. No. 1 Harrison-Ward, NE SE NE Section 17-9n-9e, was shut down at 2,092 feet.

In Shelby County, Black and others No. 1 Hopkins, SE NW SE Section 1-9n-4e, Benoist top at 1,730 feet; Frank Frederick and others No. 1 Fluge, near C N half NE NW Section 34-10n-5e, spudded and shut down; Independent Refiners & Producers No. 1 Darst, NW NW NW Section 17-11n-2e, drilling at 250 feet; Independent Refiners & Producers No. 1 J. Hackenburg, SE SW SW Section 20-12n-2e, underreaming 8-inch casing to 900 feet.

In Macoupin County, Phillips Petroleum Co. No. 1 Giller, 1,028 feet from E and 330 feet from N lines of NW quarter Section 15-11n-8w, had Trenton lime at 1,681 feet, drilling at 1,686 feet.

In Coles County, Ed Swearer and Crown Petroleum Co. No. 1 Sanders, SE SE NW Section 27-13n-8e, was drilling at 500 feet.

In Champaign County, Barber & Seiver No. 1 Lindsey, C NW SE Section 20-20-8e, shut down at 610 feet.

In Edgar County, the McNamara Construction Co. No. 1 Blair, NW NE NW Section 24-14n-14w of first meridian, was shut down at 500 feet.

In Wayne County, Dr. Moore No. 1 Moore, SE NE NW Section 16-3s-5e, shut down at 2,125 feet.

In Jefferson County, Magnolia Petroleum Co. No.

(Continued on Page 96)

Open Promising Spot 5 Miles North of the Birk City Pool

OWENSBORO, Ky., Nov. 21.—Another producing area was indicated in Henderson County by the showing in Cumberland Petroleum Co., Snowden & McSweeney and others No. 1 J. T. Griffith, 5 miles north of Birk City on the Laketown road near the Ohio River. The well cored 17 feet of well saturated McClosky lime. Top of the McClosky was unofficially given as 1,928 feet. Tools are being moved to a location of Snowden & McSweeney on the J. P. Miles farm about 1,000 feet from the well on the Griffith farm.

Snowden & McSweeney No. 2 Helen Birk Fisher, a 100-bbl. well in the Birk City pool, is producing from McClosky pay at 1,876-79 feet, total depth 1,894 feet. It had been acidized with 4,000 gallons. This test had Glen Dean at 1,347 feet, Golconda at 1,446 feet, Barlow lime at 1,570 feet, Bethel sand at 1,647 feet. Aetna Oil Service Co. No. 4 Goodloe Morrison, had McClosky pays at 1,836-37 feet, 1,856-57 feet, and 1,860-62 feet. It was given a 4,000-gallon acid treatment. It started at 18 bbls. a day.

Acos, Cooper and Ralston No. 1 Logsden, regarded as an important test in Daviess County, was acidized with 500 gallons to help clean out the hole but later swabbed only 40 bbls. of fluid, mostly of acid water and the oil load. McClosky pay was found at 1,822-30 feet, total depth 1,882 feet.

Major Oil Service No. 1 Mirilda Wahl, in Daviess County, had McClosky pay at 1,911-22 feet, total depth 1,930 feet. It was acidized with 4,000 gallons and swabbed 500 bbls. of oil, cut by water. The well was shut down for treatment of the oil. It will make a good well. Arch Carpenter and others No. 1 M. Sapp, found McClosky pay at 1,851-68 feet. The well was given a 4,000-gallon acid treatment and later pumped 170 bbls. per day.

Phillips Petroleum Co. and Hupp No. 1 H. E. Jones had McClosky pay at 2,112-22 feet, total depth 2,140 feet, a small show of oil and some water and the operation was shut down for orders.

Other completed wells, and new operations, were reported from various counties in the Western Kentucky area, as follows:

Butler County, Silver City district: Cumberland Petroleum Co. No. 1 Lon Andrews, 100,000 feet of gas per day at 342-54 feet; Anna K. Wilson Co. No. 1 A. J. Peay, drilling at 335 feet. Rochester district: Porter Evans and others No. 2 R. E. Cornell, dry hole through Jett sand, total depth 867 feet. South Hill district: Porter Evans and others No. 1 Ben Moore, dry hole, total depth 917 feet.

Caldwell County, Flat Rock district: Dr. A. F. Crider No. 1 Fox, spudding in.

Daviess County, Birk City district: Bailey, Bond, Hays & Fitzpatrick No. 3 R. M. Hagan, north 100 acres, rigging up; Major Oil Co. No. 2 Mrs. Helen Harrington, 1,000,000 feet of gas, total depth 1,150 feet; Aetna Oil Service Corp. No. 2 Henry Miller, location; Major Oil Co. No. 1 Prudential Insurance Co., L. E. Morris tract, dry hole, total depth 2,053 feet. Utica district: O. D. Vickers and others No. 2 William Johnson, rigging up.

Hancock County, Easton district: James C. Ellis No. 24 Smith Heirs, spudding in.

Henderson County, Birk City district: Aetna Oil Service Corp. No. 4 C. A. Dempewolf, 300 bbls. per day from McClosky lime; No. 5 Dempewolf, setting casing. Spottsville district: Magnolia Petroleum Co. No. 1 J. W. Isobell, rigging up; Magnolia Petroleum Co. No. 1 Miss C. Neal, spudding in. Reed district: Cumberland Petroleum Co. and Snowden & McSweeney No. 1 J. T. Griffith, cored 17 feet of McClosky pay, good saturation; Cumberland Petroleum Co. and Snowden & McSweeney No. 1 J. S. Vanda, moving in.

McLean County, Island district: South Penn Oil Co. No. 6 H. K. and J. Kirtley, 90 bbls. per day from Jett sand, total depth 1,407 feet.

Ohio County, Adaburg district: Nollem Oil & Gas Co. No. 11 Vincent Crowe, 10 bbls. per day from Jett sand, total depth 622 feet; No. 12 Crowe, spudding in. Oklahoma district: A. Teller, Trustee, No. 9 Archie Dickens, dry hole, total depth 630 feet; White & Vickers No. 2 Thurman Greer, moving in. South Livermore district: Ohio Oil Co. No. 2 Fannie Foley, 25 bbls. per day from Jett sand, total depth 1,154 feet; Ohio Oil Co. No. 3 Fannie Foley, 5 bbls. per day from Jett sand at 1,144-53 feet and 1,168-78 feet, total depth 1,183 feet.

Oklahoma Operations

By DAL DALRYMPLE

Outpost Near Maud Produces 830 Bbls. Oil in Nine Hours

The Morgan, Flynn & Cobb and Summit Drilling Co. No. 1 School Land, NE NE SW Section 16-8-5, wildcat discovery about 3 miles north of the town of Maud in the Maud-Carr City district, flowed 830 bbls. of oil in nine hours through perforations in casing at 4,030-33 feet in lime. On an earlier test, it flowed 482 bbls. of oil in four hours. Gas was estimated at 7,000,000 feet. It originally was bottomed in Wilcox sand at 4,265-70 feet, where a small amount of oil and considerable water was found, and then plugged back to 4,183 feet. Operators were endeavoring to shut off water.

Lease Investment Co. No. 1 fee, SE SW SE Section 21-13-10, Wilcox sand pool opener in northern Okfuskee County, Oklahoma, was due for completion within the next few days. It found oil in Wilcox sand at 3,600-13 feet, total depth, swabbing and flowing two heads of 35 and 55 bbls. of oil, producing a total of 250 bbls. of oil in three days. Operators continued to test.

Atlantic Refining Co. No. 1 Goss, NW NW SE Section 6-6-4, southwest edge of the St. Louis district in Pottawatomie County, found Wilcox sand production in an area where other production was from Viola lime. It topped second Wilcox sand at 4,502 feet, total depth 4,516 feet, swabbed 298 bbls. of 40-gravity oil in four hours, and was shut in for tankage.

Carter Oil Co. and others No. 1 Hamilton, C W half NE SW Section 33-4n-9e, which opened the Citra pool in Hughes County with a small oil producer in September, 1937, has been plugged back and recompleted for 22,000,000 feet of gas through perforations in Cromwell zone at 4,228-37 feet. Oil production had declined prior to plugging back. Originally it was bottomed at 6,177 feet and plugged back to 5,995 feet to complete as an oil well.

Helmerich & Payne and others No. 1 Strain, NW NW SE Section 27-16-1e, south offset to the discovery well in the Meridian pool, Logan County, was due to test after setting 7-inch casing. It topped Viola lime at 5,155 feet and was bottomed at 5,222 feet in dolomite, with saturation from 5,195 feet. Same operators' No. 1 Humphreys, NE NE SW Section 27-16-1e, southwest offset to the discovery, had water in first Wilcox sand at 5,252-71 feet, and was drilling to second sand below 5,278 feet.

Wildcat Activity

Simpson & Roodhouse No. 1 Watson, SE NE SW Section 11-6-5, wildcat in Seminole County, failed to find any showings of oil and was dry and abandoned at 3,187 feet, total depth.

S. J. Campbell No. 1 Featherstone, C N half NW SW Section 19-3n-12, wildcat in southwestern Pittsburg County, was a recent completion, extending the Coal gas pool to the southeast. It produced 5,250,000 feet of gas at 1,260 feet, total depth.

Patsy Oil Co. No. 1 Spence, NW SE SE Section 19-2n-8, wildcat northwest of the Centrahoma area in Coal County, was moving in tools. S. T. Moore No. 1 Graumann, NE NW NW Section 11-5-21w, an old wildcat in Greer County, was a rig, preparing to deepen from 550 feet. J. L. Casey No. 1 Pace, SW SW NE Section 14-2n-7, wildcat northeast of the Fitts field in Pontotoc County, was a rig. Thompson Brothers No. 1 Ruby, NW NW NE Section 30-12-22e, wildcat in Sequoyah County, was a location. Ace Gutowsky and others No. 1 Lankard, SE Section 34-17-6w, was location for a Kingfisher County wildcat. H. M. Acre and H. W. Lee No. 1 Atchison, C NW NE Section 13-24-11w, Alfalfa County wildcat, was a rig.

Pottawatomie County

Denver Producing & Refining Co. No. 1 Hurford, C N half N half SE Section 2-6-4, St. Louis district, Pottawatomie County, topped pay at 4,154 feet, total depth 4,168 feet, and pumped 100 bbls. of oil and 2,000 bbls. of water in 24 hours.

Wood Oil Co. No. 2 Swan, NW NW SE Section 36-7-4, pumped 275 bbls. of oil with 576 bbls. of water, in 24 hours from pay topped at 4,250 feet, total depth 4,276 feet.

Taber & Coleman No. 1 Briscoe, SW SW NE Section 29-7-5, found pay at 4,078 feet, was bottomed at 4,176 feet, and had initial yield of 200 bbls. of oil and 240 bbls. of water in 24 hours.

J. E. Trigg No. 2 Rhodd, NW SE SE Section 32-7-5, pumped 468 bbls. of oil initially in 24 hours from pay at 4,110 feet, total depth 4,118 feet.

Sinclair Prairie Oil Co. No. 6 Nadash, NE NW SW Section 29-7-5, a recent completion in the St. Louis field, yielded 300 bbls. of oil initially in 24 hours at total depth of 4,135 feet.

Same company's No. 7 Nadash, SE SW NW Section 29-7-5, was a rig. Arkoma Oil Co. No. 4 Beam, NE SW NW Section 36-7-4, was a location. Trigg No. 2 Canfield, NE NW SW Section 33-7-5, an old well bottomed at 4,216 feet, was preparing to rework.

Seminole County

J. F. Smith No. 3 Bowles, SE NW SE Section 32-7-6, Dora pool, Seminole County, had pay at 2,845 feet, total depth 2,870 feet, pumped 175 bbls. of oil initially in 24 hours.

McQueen and others No. 8 Bruner C, SE SE NE Section 4-6-6, pumped 140 bbls. of oil in 24 hours from pay topped at 2,691 feet, total depth 2,725 feet.

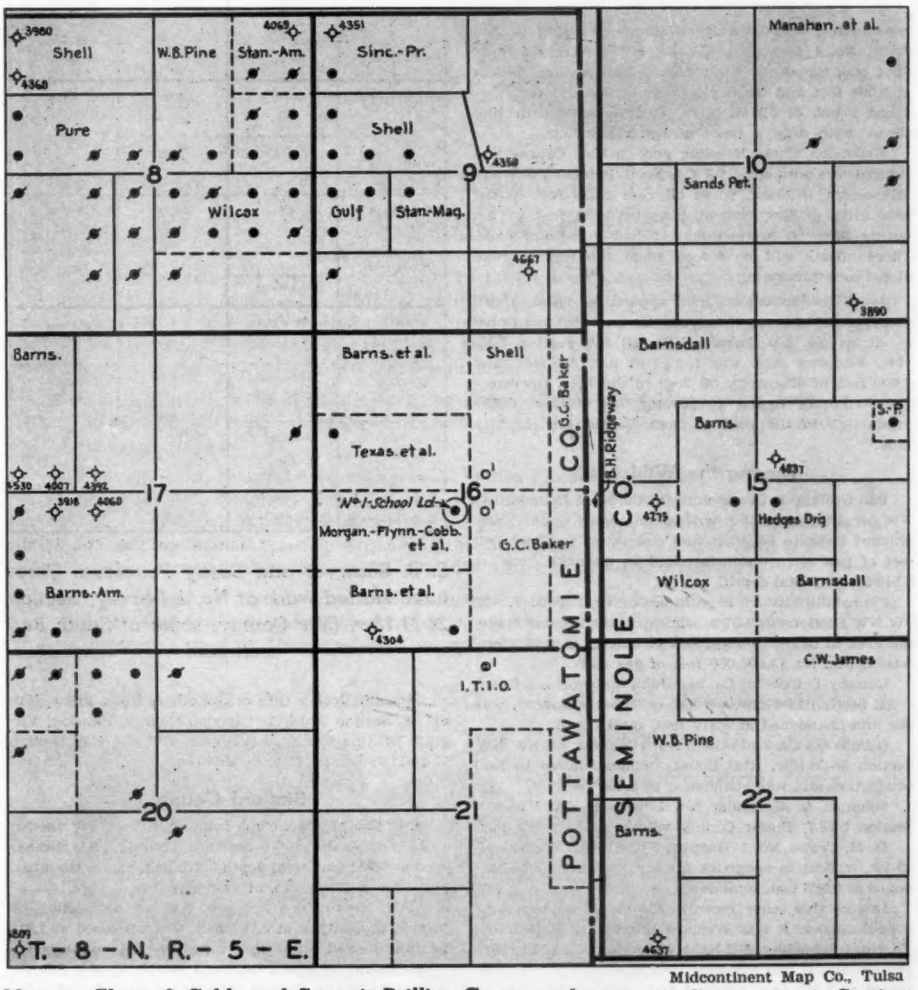
J. F. Smith No. 1 C. T. Smith, NW NE NE Section 20-7-6, total depth 4,326 feet, pumped 220 bbls. of oil initially, and was a recent completion.

J. Ligon No. 1 Logan, SW NW NE Section 25-8-7, was drilling below 2,550 feet. J. F. Smith No. 2 Huddleston, SE SE NW Section 32-7-6, was making hole below 310 feet. Same operator's No. 1 Billington, SW SW NE Section 28-7-6, was a cellar.

Pontotoc County

Frank Newsom No. 4 Walker, NW NW SW Section 11-4-6, Oakman area, Pontotoc County, pumped 5 bbls. of oil daily and was completed at 1,178 feet.

(Continued on Page 95)



Midcontinent Map Co., Tulsa

Morgan, Flynn & Cobb and Summit Drilling Co. opened a new producing area in Section 16-8-5, Pottawatomie County, in the Maud district

Kansas Developments

By
DAL DALRYMPLE

Midway Test May Link South Silica---Silica Pools in Barton

The long expected linking of the Silica and South Silica fields in Barton County, Kansas, seemed assured at Indian Territory Illuminating Oil Co. No. 1 Peters B, NW cor. Section 13-20-11w. Operators were testing after second acid treatment. Originally it pumped 15 bbls. of oil in nine hours following first acid treatment with 2,000 gallons. Total depth was 3,294 feet in Arbuckle lime. Location is one-half mile south of Silica production and an equal distance north of the South Silica pool.

A one-fourth mile westward extension of the Edwards pool in Ellsworth County was assured at Continental Oil Co. No. 1 Fuller, CEL SE Section 28-17-8w. Top of Arbuckle lime was found at 3,174 feet, total depth 3,220 feet, and oil rose 3,100 feet in the hole after the plug in 7-inch casing was drilled out. It was shut in for tankage and production test.

Another Ellsworth County extensioner was near completion at C. E. Ash No. 1 Wilkins, SE SE NE Section 13-17-10w, one-half mile northwest of the Wilkins pool. It found Arbuckle lime at 3,254 feet, total depth 3,282 feet, and rose 1,300 feet in the hole in 10 hours, the hole later filling with oil. The well was to be acidized and tested.

The Robbins pool in Sedgwick County was extended one-fourth mile northeast at Shawver, Polhamus and Smith No. 1 Lohkamp, SW SE NW Section 18-28-1e. Chat was topped at 3,071 feet, 7-inch casing was set at 3,094 feet and when plug was drilled the well produced 1 bbl. of oil an hour. Operators were drilling ahead, with only a trace of water showing.

Extension of the Keesling pool in Rice County was assured at Continental Oil Co. No. 1 Peterson, SW SW SE Section 10-20-9w, when oil rose 2,500 feet in the hole after drilling cement plug to 3,221 feet in Arbuckle lime. A production test had not been made. Three offsets will be forced when the well is completed as a producer.

Jones & Shelbourne, Inc. apparently have tapped a deeper pay zone in the Greenvale pool, Russell County, at its No. 1-B Kuhnle, NW NE SW Section 5-15-12w. Simpson sand was found at 3,277-83 feet, and 2,800 feet of 40-gravity oil rose in the hole. Operators were running casing preparatory to testing. Other production in the pool is from Lansing-Kansas City lime.

Among the Wildcats

Ben Gralapp & Continental Oil Co. No. 1 Community, NW cor. Section 23-32-5, wildcat in Cowley County, was plugged back to 680 feet and completed for 5,000,000 feet of gas after water intruded in Arbuckle lime at 3,549-57 feet, total depth.

Panhandle Eastern Pipe Line Co. No. 1 Towler, SW SW NW Section 20-30-37w, wildcat in the greater Hugoton area in Grant County, was completed at 2,793 feet, total depth, for 14,000,000 feet of gas daily.

Ramsey Petroleum Co. and John Mabee No. 1 Ryan, C SE Section 27-8-32w, wildcat in Thomas County, was dry and abandoned at 5,312 feet, total depth.

Glimac Oil Co. and others No. 1 Malone, SE SW NW Section 36-20-10w, Rice County wildcat, failed to find production and was abandoned at 3,400 feet.

Solomon & Alexander No. 1 Sawyer, SW NW SW Section 2-28-7, Butler County wildcat was at 183 feet.

D. M. Crowe No. 1 Murphy, SW SW SE Section 34-29-1w, wildcat in Sedgwick County, was dry and abandoned at 3,925 feet, total depth.

One of five other recently completed wildcats was a pool opener. It was Western Kansas Oil & Refining Co. No. 1 Schneider, NE NE NW Section 35-15-14w, Russell County. It had Arbuckle lime at 3,345 feet, was bottomed at 3,355 feet, acidized and made potential of 1,861 bbls. of 37.6-gravity oil.

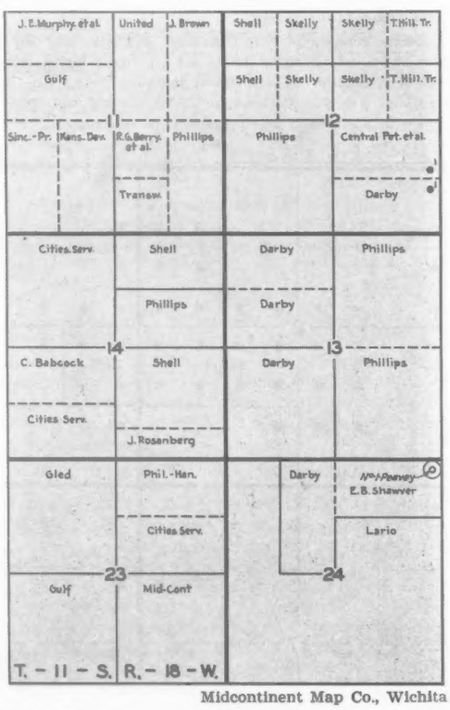
J. A. Turner and others No. 1 Unshide, C NE SW Section 32-8-9, wildcat in Pottawatomie County, northeastern Kansas, was abandoned at 1,985 feet.

Cities Service Oil Co. No. 2 Samuelson, C NE Section 36-11-17w, Ellis County wildcat, was a failure at 3,500 feet, total depth.

J. C. Shaffer, Inc. No. 1 Barrett, SW SW NW Section 36-16-14w, wildcat in Barton County, was dry and abandoned at 3,469 feet, total depth.

H. B. Garden No. 1 Strickler, NW cor. Section 17-22-6w, wildcat in Reno County, failed to find oil or gas and was abandoned at 4,035 feet.

New wildcats: Cities Service Oil Co. No. 1 DeWitt, C S½ S½ NE Section 3-19-9w, Rice County, rigging up; Darby Petroleum Corp. No. 1 Peavey, NW NW NE Section 24-11-18w, Ellis County, location; Cities Service Oil Co. No. 1 Hall B, C NW Section 2-12-17w, Ellis County, rig; Sinclair Prairie Oil Co. and others No. 1 Prusa, NW SE SE Section 20-16-11w, Barton County, location; Virginia Drilling Co. No. 1 Clawson, SW SW NW Section 17-20-11w, Barton County, drilling.



Midcontinent Map Co., Wichita

E. B. Shawver and Darby Petroleum Corp. have started work at No. 1 Peavey, Section 24-11-18w, Ellis County, south of South Burnett pool

Stafford County

J. E. Crosbie, Inc. No. 5 Johnson, SE NE SW Section 13-24-11w, Zenith field, Stafford County, had Misener sand at 3,792 feet, total depth 3,812 feet, and made initial potential of 2,297 bbls. of 42-gravity oil.

E. H. Moore No. 1 Johnson, NW SW SE Section 13-24-11w, topped pay at 3,787 feet, was bottomed at 3,813 feet and flowed 145 bbls. of oil in the first 4 hours.

Stanolind Oil & Gas Co. No. 5 Martin, C W½ SE NW Section 14-24-11w, flowed 661 bbls. of oil daily from pay topped at 3,815 feet, total depth 3,821 feet.

Stanolind Oil & Gas Co. and National Refining Co. No. 1 Taylor, C SW Section 28-25-12w, Bonham area, was dry and abandoned at 4,224 feet.

Other recent completions in the Zenith field: Stanolind Oil & Gas Co. No. 4 Hayes, NW SW SE Section 11-24-11w, was bottomed at 3,761 feet and made potential of 2,171 bbls. of oil.

Same company's No. 1 Hartnett, SW SW NW Section 13-24-11w, total depth 3,794 feet, was shot and made potential of 513 bbls. of oil.

Pure Oil Co. No. 11 Krey, NE NE SE Section 14-24-11w, found Misener sand at 3,779 feet, total depth 3,795 feet, and made potential of 2,152 bbls.

Sinclair Prairie Oil Co. No. 4 Krey, SE SE NE Section 14-24-11w, made potential of 1,532 bbls. of oil at total depth of 3,795 feet.

Derby Oil Co. No. 3 McComb, NE NW NW Section 24-24-11w, found Misener sand at 3,802-21 feet, total depth, and made potential of 2,411 bbls. of oil.

New work in Stafford County: J. E. Crosbie, Inc. No. 7 Johnson, NW NE SW Section 13-24-11w, building rotary rig; E. H. Moore, Inc. No. 5 Johnson, SE SW SE Section 13-24-11w, rigging up rotary; same operator's No. 6 Johnson, SE NW SE Section 13-24-11w, rotary rig; same operator's No 7 Johnson, NW NW SE Section 13-24-11w, building rotary rig; Stanolind Oil & Gas Co. No. 4 Volker, CW½ SE SW Section 14-24-11w, location: Stanolind and others No. 6 Ferris, CW½ NE NW Section 23-24-11w, location.

Estimated Daily Production

Estimated daily production for Kansas for the week ending November 19, and for the preceding week was as follows:

	Barrels	
	Nov. 19	Nov. 12
Oxford City	1,100	1,075
Burrton	8,575	9,550
Ritz-Canton	4,250	4,225
Graber	3,500	2,675
Hollow-Nikkel	1,700	1,725
Lerado	900	850
Voshell	1,800	1,825
Wellington	2,175	2,250
Ellsworth County:		
Lorraine	1,910	2,075
Other pools	1,195	2,125
Rice-Barton counties:		
Bloomer	2,000	1,850
Chase	3,000	4,000
Geneseo	3,675	3,275
Raymond	750	825
Silica	10,150	8,150
South Silica	2,075	1,400
Keesling	725	700
Wherry	2,875	3,325
Miscellaneous Barton	6,600	6,400
Miscellaneous Rice	5,965	6,125
Russell County	22,250	21,275
Sedgwick County	3,730	3,750
Ellis County:		
Bemis	5,005	5,675
Miscellaneous	3,145	2,305
Kingman County	680	680
Stafford County	4,540	4,100
Greenwood County	9,300	9,200
Butler County	19,550	19,150
Other fields	20,405	17,515
Total Kansas	154,125	148,075

Russell County

Texon Oil Co. No. 8 Letsch, SE SW SW Section 26-14-13w, Letsch pool, Russell County, topped pay at 2,791 feet, total depth 2,900 feet, and pumped 556 bbls. of oil in the first 8 hours.

Cities Service Oil Co. No. 1 Cook, NW NW SE Section 4-15-12w, Greenvale area, found pay at 2,930 feet, was bottomed at 3,024 feet, and pumped 228 bbls. of oil in the first 8 hours.

Other late completions in Russell County included Shell Petroleum Corp. No. 1 Major, SW SW NE Section 4-15-12w. It topped Lansing lime at 2,927 feet, total depth 3,289 feet, plugged back to 3,030 feet, acidized and produced 300 bbls. of oil initially.

Skelly Oil Co. No. 10 Neidens, NE SE NE Section 32-15-13w, was acidized and produced 184 bbls. of oil

initially. It found Lansing lime at 3,080 feet, total depth 3,349 feet, plugged back to 3,266 feet and acidized.

First reports of new operations in Russell County: Shell Petroleum Corp. No. 4 Dumler, NE SE SW Section 36-15-14w, location; Cities Service Oil Co. No. 1 Eickman B, SE SE SW Section 26-15-14w, rigging up rotary; Phillips Petroleum Co. No. 1 Mollie, NW NW NE Section 35-15-14w, location; Stanolind Oil & Gas Co. No. 1 Boxberger, SW SE SW Section 14-14-14w, location.

Ellis County

Watchorn Oil & Gas Co. No. 2 Brown, NW NE SE Section 3-14-17w, Ellis County, topped pay at 3,500 feet, was bottomed at 3,505 feet, and pumped 190 bbls. of oil in the first 8 hours.

Cities Service Oil Co. No. 4 Rumsey, NE NE SW Section 23-11-17w, a recent completion, had Arbuckle lime at 3,415-23 feet, total depth, and made potential of 611 bbls. of oil.

Shell Petroleum Corp. No. 16 Rumsey, SE SE NW Section 23-11-17w, Bemis field, found Arbuckle lime at 3,399 feet, total depth 3,422 feet, and made initial potential of 2,914 bbls. of oil.

Murphy Oil Co. No. 4 Rumsey, SE NE SW Section 23-11-17w, was a rig.

Barton County

A new producer was added in the Ellinwood area of Barton County at Texas Co. No. 1 Koch, NE NW SW Section 7-20-11w. It topped Arbuckle lime at 3,330 feet, total depth 3,343 feet, and pumped 693 bbls. of oil, with 60 per cent water, in the first 8 hours.

Six other wells were recently completed in Barton County. Phillips Petroleum Co. No. 7 McClanahan, SW NE SW SE Section 7-16-13w, found Arbuckle lime at 3,354-66 feet, total depth, and made potential of 1,308 bbls. of oil.

Stanolind Oil & Gas Co. No. 3 Redetzke, CS½ S½ SE Section 26-16-13w, made potential of 368 bbls. of oil after acidizing Arbuckle lime topped at 3,389 feet, total depth 3,395 feet.

Shell Petroleum Corp. No. 1 Schneider B, NE NW SE NW Section 1-16-14w, was dry and abandoned at 3,320 feet, total depth.

Same company's No. 2 Hoffman B, NE cor. Section 12-16-14w, was completed as a water disposal well at 3,632 feet, total depth.

Stanolind Oil & Gas Co. No. 17 Fred Panning, CN½ S½ NE Section 2-20-11w, was dry and abandoned at 3,303 feet, total depth.

Same company's No. 11 Kowalsky, CN½ S½ NE Section 11-20-11w, found Arbuckle lime at 3,282-93 feet, total depth, was rated potentially at 1,991 bbls. of oil.

New operations in Barton County: Skelly Oil Co. No. 1 Gage, SE SE SW Section 35-16-13w, moving in material; Sinclair Prairie Oil Co. No. 4 Hoffman, NE cor. Section 7-16-13w, building rotary rig; Skelly Oil Co. No. 1 Linsner, SW SE SE Section 3-17-13w, moving in material.

McPherson County

Dickey Oil Co. No. 1 Carlson, SE SW NW Section 24-19-3w, Chindberg area, topped pay at 2,978 feet, total depth 2,987 feet, and pumped 133 bbls. of oil in the first 8 hours.

Jess Cling and others No. 1 Unruh, C NE SE Section 26-19-2w, a recent completion, found chat at 2,913 feet, was bottomed at 2,975 feet, and yielded 120 bbls. of oil daily.

H. & M. Drilling Co. and others No. 2 Peterson, SW NW SE Section 24-19-3w, was dry and abandoned at 3,042 feet, total depth.

Springrose Drilling Co. No. 2 Carlson, SW SE NW Section 24-19-3w, was a location. Dickey Oil Co. No. 6 Decker B, SW SW SE Section 35-19-2w, was rigging up rotary.

Rice County

Continental Oil Co. No. 4 Meyer, SE SE SW Section 30-18-7w, Geneseo field, Rice County, topped pay at 3,163 feet, was bottomed at 3,180 feet and had initial potential of 2,057 bbls. of oil.

Shell Petroleum Corp. No. 11 Zajic, NE cor. Section 13-18-8w, pumped 905 bbls. of oil in 8 hours from pay found at 3,194 feet, total depth 3,213 feet. Gravity of the oil was 40 degrees.

A recent failure in Rice County was recorded at Frank Hollow and others No. 1 Beck, SE SE SW Section 6-18-10w. It was dry and abandoned at 3,288 feet, total depth.

Stanolind Oil & Gas Co. No. 1 Heine, SE cor. Section 21-19-10w, was dry and abandoned at total depth of 3,325 feet.

Continental Oil Co. and others No. 4 Pickerville, NW NW SE Section 13-18-8w, was a cellar. Lauck Petroleum, Inc. No. 1 Berscheit, NW NW SW Section 18-20-10w, was building rotary rig.

Rooks County

Vickers Petroleum Co. No. 3 Luhman, NW NW SE Section 11-9s-16w, Rooks County, found Lansing lime at 3,221 feet, total depth 3,315 feet, was acidized and completed recently for 277 bbls. of oil daily.

Marion County

Phillips Petroleum Co. No. 18 Alvin, NW SE NE NW Section 15-22-4, was a recent Marion County completion. Top of Hunton lime was 2,507 feet, total depth 2,511 feet, it was acidized and pumped 93 bbls. of oil initially.

Cowley County

Trees Oil Co. No. 3 Lewis, NE NW NE Section 28-31-4, Cowley County, found top of pay at 3,325 feet, total depth 3,333 feet, and pumped 765 bbls. of oil in the first 8 hours.

E. B. Shawver No. 3 Wallace, SW SE SW Section 15-32-4, Winfield area, was dry and abandoned at 2,320 feet, total depth.

Blair & Continental No. 2 Dunlap, NW NW NE Section 21-32-5, Frog Hollow district, had pay at 3,056 feet, total depth 3,093 feet, and flowed 76 bbls. of oil the first 8 hours.

Earl Wakefield No. 1 Hower B, SE cor. Section 32-33-3, had spudded.

Sedgwick County

Harwood Oil Co. No. 1 Shakey, NE NE SW Section 32-28-2e, Derby gas area, Sedgwick County, topped pay at 2,199 feet, total depth 2,225 feet, and produced 10,648,000 feet of dry gas.

Sumner County

E. B. Shawver No. 1 Ludwig, SE SE NE Section 29-31-1w, Wellington area, Sumner County, topped pay at 3,662 feet, was bottomed at 3,700 feet, and pumped 210 bbls. of oil in the first 8 hours.

(Continued on Page 82)

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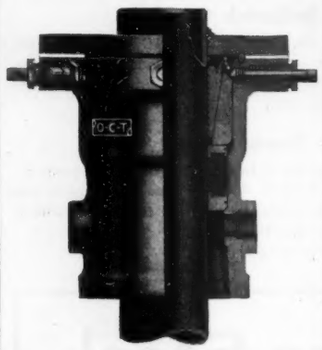

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Among the Drilling

JOHNSON DRILLING CO., of Longview, Tex., is building a dam on a creek on the Frank Mitchell farm just south of Collinsville to provide water supply for drilling operations in the Collinsville field of Grayson County, North Texas. The drilling company is expected to carry on a drilling campaign for F.H.E. Oil Co. of Fort Worth and associated companies on leases recently acquired in the field. First operation will be a southeast diagonal offset to the discovery well and will be F.H. E. Oil Co. No. 1 W. L. Graham, in the Charles Quillen Survey on the north 40 acres of an 80-acre tract.

MURRAY & GRIFFEY, of Tulsa, have contract for a second test on a tract in Young County, North Texas, where the drilling company, together with Dean Brothers of Fort Worth, last month opened a new pool with their No. 1 P. W. King, which came in flowing 300 bbls. of oil per hour from the 3,700-foot level. The new test is No. 1 J. C. Vaughn, contracted to 4,500 feet. Preparations are being made for immediate spudding. Location is approximately 3 miles southwest of Graham and in the B. Russell Survey.

RUTHERFORD DRILLING CO. has started drilling operations on the company's wildcat, 3 miles northeast of the La Rosa field in Refugio County, Texas. The well is on the Emil Neimann lease in the Esteban Lopez Survey.

TRINITY DRILLERS of San Antonio, Tex., extended the East Premont field, Jim Wells County, Texas, 1½ miles to the southwest with completion of Transwestern Oil Co. No. 1 Dunlap. The well is cleaning out, flowing 4 bbls. of fluid per hour.

W. F. SNEBOLD, West Central Texas wildcatter, is indicating a new pool 2 miles north of the Ivy pool of northwestern Shackelford County. Saturated lime was drilled from 3,239-47 feet where the test shut down with oil in the hole. Casing was set and the plug will be drilled in the next few days. Location is in the NE Section 15-3, H.&T.C. Survey.

W. B. OMOHUNDRO, of Wichita Falls, Tex., is drilling an important wildcat in northern Montague County, which is indicating a new deep horizon pool. Test is being drilled for Youngblood & Foree as their No. 1 J. E. Humphrey, in the J. Lenow Survey, Abstract 433, about a mile west of Nocona. Six feet of saturated sand have been drilled from 4,139-45 feet, and casing has been cemented at 4,137 feet. Operators are swabbing and cleaning out the hole preparatory to drilling the plug in the next few days.

HELMERICH & PAYNE, INC., Tulsa, is setting pipe at No. 1 Strain, NW SE Section 27-16-1e, in the Crews area, Logan County, Oklahoma, which is being drilled in partnership with Deep Rock Oil Co.; pipe is set on top of the dolomite at 5,227 feet. In the same section, this drilling organization is drilling slowly ahead at 5,278 feet.

OLSON DRILLING CO., Tulsa, is drilling below 6,568 feet at No. 1 Seberger, SW NE Section 4-12-3w, Oklahoma County, Oklahoma. This company is drilling below 3,000 feet at No. 1 Eastep in Section 11-8-9e, west of the Yeager pool, Hughes County, Oklahoma, for Power Oil Co. This drilling organization is drilling below 2,356 feet at No. 2-A Royce, in SW NW NE Section 12-5-9w, in the Cement pool, Caddo County, Oklahoma.

HOUSH & THOMPSON were drilling plug, preparatory to testing their No. 1 Clary, an interesting wildcat in Montgomery County, Texas, which has shown evidence of oil production on a drill stem test. The hole is bottomed in the lower Cockfield sand at 4,739 feet and 7-inch casing was cemented at 4,736 feet. In the Fairbanks field, Harris County, No. 1 Baines, northwest of the discovery well of the Goodykoontz area, has been abandoned below 7,500 feet.

GEORGE ECHOLS is coring below 8,000 feet on H. C. Cockburn No. 1 Harrdt, a wildcat 2 miles north of the League City, Galveston County, discovery well. The test is reported to be checking about 280 feet higher than the discovery well which makes it one of the most attractive tests along the Texas Coast. Offsetting the discovery well to the east, George Echols No. 1 Stewart-Ross is drilling in shale below 7,467 feet.

SMITH & McDANNALD have started drilling operation at their No. 1 Broussard, an outpost test in the Withers field, Wharton County, Texas. On the south flank of the South Houston salt dome, Harris County, No. 1 Molk is drilling below 5,500 feet.

ALLEN & MORRIS have moved another rotary to the La Rosa field, Refugio County, Texas, where No. 1 Sasse is being started for Fred Shield. The well offsets Rutherford Oil Corp. No. 1 Schirmer which

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Contractors

opened a new sand in the field several weeks ago. In the field proper two operations are reported for Geophysical Service, Inc., on the Rooke and Michna leases. Other operations are reported for the Luby and South Clara Driscoll fields for Seaboard Oil Co. and Texas Co.

PENNINGTON & CARTWRIGHT are preparing to spud their No. 1 F. L. Banker, a wildcat 1½ miles west of the Conroe field in Montgomery County, Texas. The well is in the L. M. H. Washington Survey, about 3 miles southeast of Housh & Thompson No. 1 Clary.

JACK FRAZIER has two rotaries operating in Harris County, one of which is coring in shale below 7,800 feet after the well attempted to blow out from sand in the upper Cockfield sand at approximately 7,760 feet. The well is on the Griffith lease in the Mount Houston area, while the other test is in the Sheldon area on the Joe Hornberger lease.

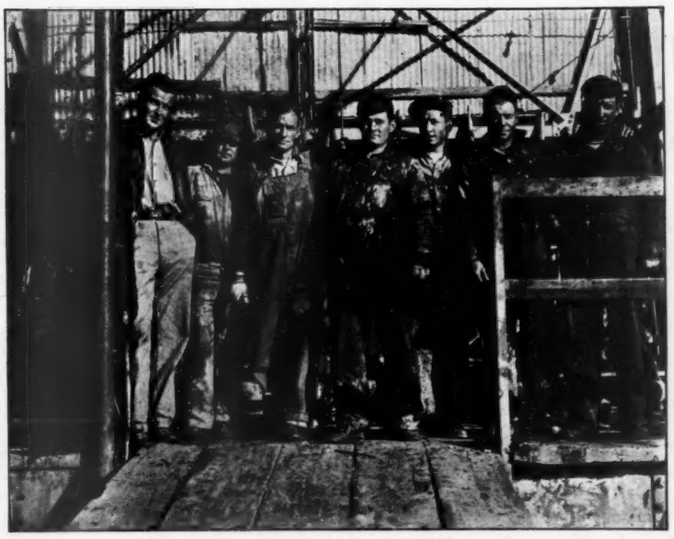
RED IRON DRILLING CO., Shreveport, La., has completed a gas distillate well in the Cass County section of Rodessa for Harry Hanbury, and is moving rig over for a second test in the same county.

J. C. TIPPETT, Shreveport, La., completed a second "D" sand producer in the Cotton Valley field of North Louisiana for the Mid-States Oil Corp. last week. The well, No. 1 Welori Lumber Co., made 541 bbls. of 47.3-gravity oil with a gas-oil ratio of 950 feet per barrel. Tubing pressure was 1,160 pounds and casing pressure was 1,530 pounds.

R. E. ALLISON, Shreveport, La., drilling contractor and discoverer of the Shreveport oil field, is moving two rigs into the field to resume drilling activity after completing his last well several weeks ago.

OVEN DRILLING CO., Enid, Okla., has run surface casing at No. 2 Boehm, NW Section 4-24-8, west of Hillsdale, Garfield County, Oklahoma, for Champlin Refining Co. It is reported that No. 1 Boehm, the discovery well, is making an increasing amount of water; about 30 per cent of the fluid is said to be cut with water.

SUMMIT DRILLING CO., Tulsa, has reset packer with the result that water, which has been cutting oil, has been successfully shut off at No. 1 School Land, NE SW SW Section 21-13-10e, in the Maud-Carr City area, Pottawatomie County, Oklahoma; it is believed water had been entering the hole at 4,151 feet. The well was drilled in a partnership with Morgan, Flynn and Cobb and others. This drilling company is planning to abandon the "Three county hot spot test," No. 1 John Gordon, NE Section 27-17-2e, Lincoln County, Oklahoma, which was drilled to a total depth of 4,895 feet.



Crew of Johnson & Kemnitz Drilling Co. on the Gulf Oil Corp. No. 1 Taylor in SE SE SW of Section 1-7n-2w, Cleveland County, Oklahoma. The members are: Bill Mitchell, Gulf engineer; Carl Richman, driller; F. Oden, motorman; Elmer Wise, derrickman; Jack Pierce, R. A. Sanderlin and Cecil Smith, roughnecks

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Rocky Mountain Area

By
T. R. INGRAM

Uneventful Week in Fields; Best Showing in New Mexico

DENVER, Colo., Nov. 21.—Colorado had one completion, a small well in the Canon City district in Fremont County. The Mountain Fuel Supply Co. No. 1 Kuykendall, an oil well in the Hiawatha gas field, is still making 80 bbls. per day after being on a prolonged production test.

The Ohio Oil Co. was victorious in the federal District Court at Cheyenne in the Richard and Barbara Cooper suit in which the plaintiffs sought to recover $5,500,000 for oil alleged to have been drained from their property in the Rock River field. Two dry holes in Fremont County were reported in the Lincoln Oil & Gas Co. No. 2 Tribal in the Plunket field and the Yellowstone Oil Co. No. 1 Government in the Shoshoni district. The Fall River Royalty & Producers Co. had a 15-bbl. well in the Lakota at 285 feet in West Mule Creek. Six new locations were made in Wyoming.

Cut Bank in Montana had two completions, K. D. Pardee No. 2 Tribal-179 swabbing 100 bbls. in eight hours and C. P. Castle No. 4 State making 20 bbls. in 24 hours. The Treasure State wildcat in Phillips County had water in the Madison and was abandoned.

The Columbia Crude Oil Co.'s test in Grand County, Utah, was dry and abandoned.

NEW MEXICO

Interest of southeastern New Mexico operators centered in the wildcat being drilled by Westmount Oil Co. at No. 1 Amerada-State, C NW NE Section 12-17-36, 6 miles south and 2 miles east of Lovington in Lea County, where a large major structure apparently has been proven. The wildcat produced from 8,000,000 to 10,000,000 feet of sweet gas daily from 3,308-19 feet and blew out at 3,986 feet after gas flow increased at 3,956-64 feet. The gas increased in volume as it blew wild and at its peak was estimated at 30,000,000 feet daily. The crew was pumping in water under pressure to kill the flow of gas. Yates sand was logged at 3,060 feet, datum of plus 770, about 200 feet higher than in an old wildcat failure drilled 1½ miles to the south. Lease and royalty prices in the district were reported increasing as a result of the wildcat's showing.

Amerada Petroleum Corp. was reported to have staked a diagonal offset to the Westmount well in C SE SW Section 1-17-36.

Continental Oil Co. No. 1 Gene Howe A-5, C SW NE Section 5-21-38, eastern Lea County wildcat, was dry and abandoned at 3,192 feet, total depth. It was reported running low structurally in comparison with a well 1¾ miles to the south which was a producer for a short time but eventually was abandoned.

All other southeast New Mexico completions of the week were in Lea County, one of the largest producers being Ohio Oil Co. No. 2 State-Warn, C NE NW Section 6-18-35, Vacuum field. It flowed 55 bbls. of oil an hour for two hours through choke on tubing set at 4,634 feet, from pay topped at 4,400 feet, total depth 4,675 feet. Other Lea County completions were:

Texas Co. completed their No. 2-L State, C NE NE. Section 1-18s-34e, Vacuum area, at total depth of 4,710 feet. Pay was topped at 4,300 feet and the well flowed 238 bbls. in six hours through open tubing set at 4,646 feet.

Continental Oil Co. No. 2 Lockhart B-1, C SE NW Section 1-22s-36e, South Eunice, flowed 75 bbls. naturally per hour on a two-hour test with 1,400,000 feet of gas from pay topped at 3,740 feet. Total depth was 3,810 feet.

Shell Petroleum Corp. No. 3 Grizzell, C SE SE Section 8-22s-37e, reached total depth of 3,709 feet in lime and sand, top of pay at 3,655 feet, and flowed 93 bbls. in six hours through 2-inch tubing set at 3,709 feet.

Great Western Production Co. No. 1 Leonard, C SE NE Section 32-23s-37e, an old well deepened to 3,660 feet, total depth, flowed 17 bbls. per day with 450,000 feet of gas.

Anderson & Prichard No. 3 Stuart, C NW NW Section 9-25s-37e, was completed for 90 bbls. per day. Top of pay was 3,364 feet, total depth 3,499 feet.

Continental Oil Co. No. 4 Meyer B-18, C E half SW NW Section 18-21s-36e, Eunice field, total depth 3,885 feet, topped pay at 3,840 feet and flowed 15 bbls. an hour naturally with 500,000 feet of gas.

Magnolia Petroleum Co. No. 17 State-Bridges, C NE NE Section 25-17s-34e, Vacuum field, flowed 185 bbls. per day from pay topped at 4,533 feet, total depth 4,750 feet.

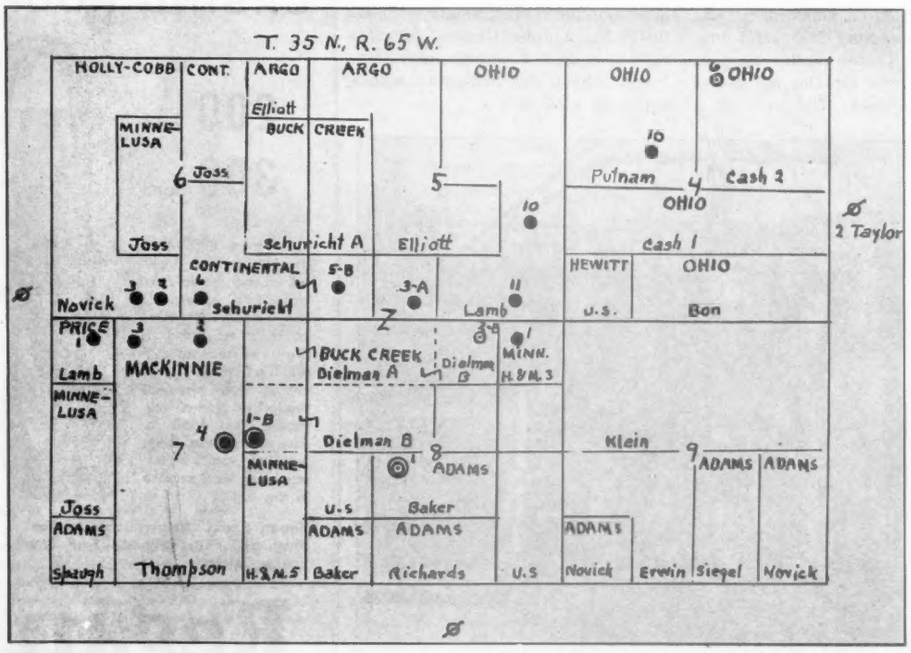
Magnolia Petroleum Co. No. 2 Hardy, NW NW NW Section 29-21s-37e, Hardy pool, was bottomed at 3,820 feet, top of pay 3,685 feet, and flowed 43 bbls. per day through open tubing set at 3,818 feet.

Same company's No. 1-N State, C SW NW, Section 19-17s-35e, Vacuum area, flowed 62 bbls. on a seven-hour test. Total depth was 4,780 feet, top of pay 4,502 feet.

James A. Mascho No. 2 Cloyd, C SW SE Section 20-22s-33e, was plugged and abandoned at a total depth of 5,038 feet in sand.

Continental Oil Co. No. 1 Lockhart B-13, NW NW NW Section 13-21s-36e, reached total depth of 3,885 feet, and after acidizing with 1,000 gallons flowed 8 bbls. per hour. Pay was found at 3,780 feet.

Shell Petroleum Co. No. 1-N State, NE NE SE Section 24-21s-35e, topped pay at 3,875 feet, total depth 3,946 feet, and flowed 37 bbls. daily.



Southern end of Lance Creek field—showing wells in Minnelusa formation only and extension in Continental Oil Co. No. 1-B Dielman and Mackinnie Oil & Drilling Co. No. 4 Thompson, and the Adams Oil & Gas Co.-Felmont Corp. No. 1 Baker, next important test scheduled for completion. Minnelusa wells shown were drilled near the edge of or outside the Sundance sand pool

Lea County

Amerada Pet. Corp. No. 1 Johnson, C NW SW Sec. 27-24-37. Drlg. 3,372 ft.
Amerada Pet. Corp. No. 5-VA State, C NW NW Sec. 22-17-35. W.O.C. 4,255 ft.
Aloco Oil Co. No. 1 Carson, C SW SE Sec. 28-21-37. Drlg. 1,140 ft.
Anderson & Prichard No. 4 Carlson-Harrison, NE SE NE Sec. 27-25-37. T.D. 3,349 ft.; shot and C.O.
Anderson & Prichard No. 4 Wells, C NW NW Sec. 5-25-37. S.D. 2,986 ft.; repairs.
Barnsdall Oil Co. No. 1 Humble-State, C NE SE Sec. 33-16-36. Drlg. 650 ft.
Cities Service No. 1-L State, C SE SW Sec. 15-17-35. Drlg. 4,061 ft.
J. C. Clower No. 1-B Manda, NE NE NW Sec. 28-22-37. Drlg. 430 ft.
Continental Oil Co. No. 3 Britt B-15, C W½ NW SW Sec. 15-20-37. Drlg. plug 3,756 ft.
Continental Oil Co. No. 1 Hawk B-6, NW NW SE Sec. 6-21-37. W.O.C. 1,380 ft.
Continental Oil Co. No. 4 Lockhart B-31, S½ SE SE Sec. 31-21-36. T.D. 3,700 ft.; W.O.C.
Continental Oil Co. No. 2 Meyer B-31, C NE SW Sec. 31-20-38. Drlg. 2,572 ft.
Continental Oil Co. No. 8 Reed B-23, CEL SW NE Sec. 23-20-36. Drlg.
Continental Oil Co. No. 1 State 1-7, NE NW NE Sec. 7-17-34. T.D. 4,895 ft.; C.O. at 4,753 ft.
Continental Oil Co. No. 2 State A-36, NE SE Sec. 36-20-36. Drlg. 1,000 ft.
Continental Oil Co. No. 2 State C-16, SW SW NW Sec. 16-20-37. Drlg. 1,182 ft.
Continental Oil Co. No. 1 State H-22, C SW SE Sec. 22-17-34. M.I. rotary.
Continental Oil Co. No. 3 State H-35, C NW NE Sec. 35-17-34. Drlg. 1,920 ft.
Continental Oil Co. No. 3 State J-2, C SE NE Sec. 2-22-36. Drlg. 3,665 ft.
Culbertson & Irwin No. 2 Dabbs, NE NW NW Sec. 35-25-37. T.D. 3,330 ft.; P.B. 3,314 ft.; F. 48 B.O. 6 hrs.
Devonian Oil Co. No. 2 Christmas, SE SW SE Sec. 28-22-37. Loc.
Devonian Oil Co. No. 1 State-Ritts, C NW NW Sec. 21 17-34. Drlg. 4,392 ft.
Walter Donnelly No. 1 Davis, C SE NW Sec. 33-23-37. T.D. 3,600 ft.; C.O. to 3,518 ft. and caught fire.
Great Western Prod. No. 2-B Leonard, C NW NW Sec. 32-23-37. Loc.
Gulf Oil Corp. No. 1 Alley, C NE SE Sec. 10-23-37. T.D. 3,715 ft.; P.B. 3,686 ft.
Gulf Oil Corp. No. 3-D Arnott-Ramsey, C NE NE Sec. 33-21-36. T.D. 3,885 ft.; F. 357 B.O. and 296 B.W. in 10 hrs.
Gulf Oil Corp. No. 1 Holt, C SW SE Sec. 16-24-37. T.D. 3,548 ft.; swbg. to test.
Gulf Oil Corp. No. 1-F Mattern, C NW NE Sec. 1-22-36. Drlg. 3,050 ft.
Gulf Oil Corp. No. 5 Stuart, C NE NE Sec. 10-25-37. Drlg.
Humble O. & R. Co. No. 4-H State, C NE NW Sec. 34-22-37. W.O.C. 3,405 ft.

Helmerich & Payne and Continental Oil Co. No. 1-G-36 State, C NW SW Sec. 36-17-35. T.D. 4,950 ft.; S.I.; no tests.
Italo Pet. Corp. No. 2 Carlson A-22, NE SW SE Sec. 22-25-37. T.D. 3,354 ft., sd.; S.I. storage.
Italo Pet. Corp. No. 1 Carlson A-23, NW NW SW Sec. 23-25-37. Drk.
Italo Pet. Corp. No. 1 Carlson B-27, NE NW NE Sec. 27-25-37. Drlg. 2,420 ft.
Italo Pet. Corp. No. 2 Carlson B-27, NE NE SE Sec. 27-25-37. W.O.C. 1,100 ft.
Italo Pet. Corp. No. 1 Indian Pet. Corp., NE NE NE Sec. 6-25-37. Drk.
Magnolia Pet. Co. No. 3 Hardy, C NE NW Sec. 29-21-37. T.D. 3,670 ft.; R.U.S.T.
Magnolia Pet. Co. No. 2-G State, C SE NE Sec. 24-17-34. W.O.C. 828 ft.
Magnolia Pet. Co. No. 2-M State, NW NW Sec. 34-17-35. Drlg. 3,180 ft.
Magnolia Pet. Co. No. 18 State-Bridges, C SE NW Sec. 24-17-34. W.O.C. 4,370 ft.
Magnolia Pet. Co. No. 19 State-Bridges, C NW NW Sec. 24-17-34. Drlg. 3,910 ft.
Maljamar O. & G. Co. No. 1-B Baish, C NE NW Sec. 22-17-32. T.D. 3,600 ft.; R.U.S.T.
Maljamar O. & G. Co. No. 6 Mitchell, C SW NE Sec. 20-17-32. Drlg. 2,440 ft.
Maljamar O. & G. Co. No. 1-B State, C SW SE Sec. 16-17-32. T.D. 4,125 ft.; S.I.
J. M. Murray, Tr., No. 1 Fanning, SE SW NW Sec. 33-23-37. T.D. 3,434 ft.; fsg.
Ohio Oil Co. No. 2 Sanders, NW NW Sec. 1-22-36. W.O.C. 1,230 ft.
Ohio Oil Co. No. 1 State-Shugart, C NE SE Sec. 34-17-34. Drlg. 4,290 ft.
Ohio Oil Co. No. 3 State-McCallister, C SW SW Sec. 25-17-34. Drk.
Olean Pet. Co. No. 1 Brunson, SW SE SE Sec. 4-22-37. Cmtg. 3,595 ft.
Olean Pet. Co. No. 2 Brunson, SW NE SE Sec. 4-22-37. W.O.C. 1,178 ft.
Olean Pet. Co. No. 1 Farrell, C NE SE Sec. 22-22-37. T.D. 3,684 ft.; P.B. 3,664 ft.; F. 36 B.O. in 24 hrs.
Parker Drlg. Co. No. 3 Erwin, C W½ NE SW Sec. 35-24-37. Drlg. 610 ft.
Lem Peters No. 3 L. J. May, C NE SE Sec. 27-22-37. T.D. 2,410 ft.
Lem Peters No. 2 T. O. May, NW NE NE Sec. 34-22-37. S.D. 3,435 ft.; repairs.
Phillips Pet. Co. No. 2 Hale, C NE SW Sec. 35-17-34. Drlg. 3,502 ft.
Phillips Pet. Co. No. 3 Hale, C SE SE Sec. 35-17-34. W.O.C. 1,540 ft.
Phillips Pet. Co. No. 1 Mabel, C SW NW Sec. 35-17-34. Drlg. 4,343 ft.
Phillips Pet. Co. No. 12 Santa Fe, C NE SW Sec. 28-17-35. Drlg. 1,025 ft.
Phillips Pet. Co. No. 13 Santa Fe, C NW NW Sec. 28-17-35. Drlg. 1,243 ft.
Phillips Pet. Co. No. 14 Santa Fe, C SE SE Sec. 20-17-35. Drlg. 1,712 ft.
Phillips Pet. Co. No. 15 Santa Fe, C NE NE Sec. 28-17-35. Drlg. 2,040 ft.
Phillips Pet. Co. No. 16 Santa Fe, C NW SW Sec. 5-18-35. Spud.
Phillips Pet. Co. No. 17 Santa Fe, C SE SW Sec. 26-17-35. Drlg. 1,640 ft.
Phillips Pet. Co. No. 19 Santa Fe, C NW NE Sec. 35-17-35. Drk.
Richmond Drlg. Co. No. 1-A State, C NW SW Sec. 2-25-37. Drlg. 390 ft.
Schermerhorn Oil Co. No. 3 Woolworth, NW NW SE Sec. 28-24-37. Drlg. 3,040 ft.
Shasta Oil Co. No. 3 Woolworth, NE SE NW Sec. 28-24-37. Drlg. 3,262 ft.
Shell Pet. Corp No. 4 Grizzel, C SW SE Sec. 8-22-37. Drk.
Shell Pet. Corp. No. 2-F State, C SE SW Sec. 29-17-35. Drlg. 1,595 ft.
Shell Pet Corp. No. 1-H State, C NW SW Sec. 29-17-35. T.D. 4,700 ft.; C.O.
Shell Pet. Corp. No. 1-I State, C SW NW Sec. 29-17-35. T.D. 4,753 ft.; F. 3 B.O. in 6 hrs.; S.D.O.
Shell Pet. Corp. No. 1-N State, C NW NE Sec. 28-17-35. Drlg. 2,550 ft.
Shell Pet. Corp. No. 1-O State, C SE NE Sec. 34-17-34. Drlg. 4,637 ft.
Shell Pet. Corp. No. 1-S State, C NE SE Sec. 21-17-35. T.D. 4,745 ft.; C.O.
Shell Pet. Corp. No. 2-B State, C NE SE Sec. 30-17-35. Drlg. 3,173 ft.
Shell Pet. Corp. No. 1-V State, C NE SE Sec. 21-17-35. Drlg. 1,780 ft.
Skelly Oil Co. No. 1 Baker, C SW SW Sec. 10-22-37. T.D. 3,752 ft.; F. 24 B.O.P.D.; to acd.
Skelly Oil Co. No. 2 Baker, C NW NW Sec. 27-22-37. (O.W.D.D.); T.D. 3,714 ft.; C.O.
Skelly Oil Co. No. 1-B King, C NE SW Sec. 33-22-37. T.D. 3,710 ft.; F. 79 B.O. in 22 hrs.
Stanolind O. & G. Co. No. 4-C Hill, C SE NW Sec. 5-21-37. Drlg. 3,748 ft.
Skelly Oil Co. No. 4 Simms, C NW NW Sec. 3-23-37. Drlg. 2,679 ft.
Standard Oil Co. of Texas No. 1 State Lease 5, C NW NW Sec. 27-17-35. T.D. 4,654 ft.; F. 110 B.O.P.D.
Standard Oil Co. of Texas No. 2 State Lease 4, C SW SE Sec. 27-17-35. Rng. csg. 4,200 ft.
Standard Oil Co. No. 2 State, Lease 5, C SE NW Sec. 27-17-35. Drlg. 680 ft.
Texas Co. No. 4 Black, C SE NW Sec. 21-24-37. Drlg. 3,085 ft.
Texas Co. No. 1-T State, C SE NE Sec. 25-17-34. T.D. 4,725 ft.; pulling tbg.
Texas Co. No. 2-N State, C NW SW Sec. 30-17-35. T.D. 4,720 ft.; swb. 11 B.O.P.H.
Texas Co. No. 3-R State, C SE NE Sec. 6-18-35. Drk.
Texas Co. No. 1-U State, C NE NE Sec. 2-18-34. T.D. 4,710 ft.; rng. tbg.
Texas Co. No. 1-V State, C NE NW Sec. 34-17-34. T.D. 4,725 ft.; acd. and tstg.
Texas Co. No. 1-W State, C SW SE Sec. 13-17-34. Drlg. 4,466 ft.
Texas Pacific Coal & Oil Co. No. 7-A State, NW NW NW Sec. 32-23-36. Drlg. 3,300 ft.
Twin Oil Co. No. 1 Hare, C SE SW Sec. 33-21-37. T.D. 3,754 ft.; F. 26 B.O. in 4 hrs.
Twin Oil Co. No. 2 Hare, C NW SW Sec. 33-21-37. W.O.C. 3,572 ft.
Twin Oil Co. No. 2 State, C SW NW Sec. 32-21-37. T.D. 1,440 ft.
Weier Drlg. Co. No. 2 Woolworth, NE SE SW Sec. 28-24-37. Drlg. 2,285 ft.
Sam Weiner No. 3 Smith, C N½ NE SE Sec. 4-25-37. Drlg. 2,750 ft.
Sam Weiner No. 1 Woolworth, SE NE SW Sec. 33-24-37. T.D. 3,550 ft.; to test.
Westmount Oil Co. No. 1 Amerada, C NW NE Sec. 12-17-36. Drlg. 3,725 ft.
Westmount Oil Co. No. 1 State, C SE NW Sec., 30-17-35. T.D. 4,728 ft.; F. 37 B.O. in 24 hrs.; tstg.
Francis C. Wilson No. 2 State, C NW NE Sec. 7-21-35. Drlg. 3,533 ft.

Eddy County

Adkinson Oil Co. No. 1 Brainard, SE SW SE Sec. 5-18-27. U.R. 922 ft.
F. E. Baker No. 1 Eddy, NE Sec. 12-22-27. T.D. 2,765 ft.; fsg.
George E. Robb No. 1 Cannon, NE SW SE Sec. 4-19-30. S.D.O. 200 ft.
George E. Robb No. 1 Vandagriff, SW NE Sec. 6-19-31. S.D.O. 200 ft.
Carper Drlg. Co. No. 1 Day, NE NE NE Sec. 3-19-21. T.D. 2,748 ft.; P.B. 2,693 ft.; pmpd. 25 B.F.P.D.
Carper Drlg. Co. No. 3 Robinson, SW SW SE Sec. 25-16-31. T.D. 3,550 ft.; est. 6,000,000 ft. gas.
B. Cockburn No. 1 State, C SW NE Sec. 16-18-31. T.D. 3,294 ft.; to shoot.
Danciger O. & R. Co. No. 1-B Turner, CEL NE SE Sec. 17-17-31. Drlg. 3,380 ft.
Dominion O. & G. Co. No. 2 Johnson, C SE NE Sec. 35-16-31. T.D. 4,033 ft.; F. 30 B.O. in 3 hrs. and died.
Dominion O. & G. Co. No. 3 Johnson, C NE SW Sec. 35-16-31. T.D. 3,950 ft.; swb. 55 B.O. in 24 hrs.
English & Harmon No. 1 Dougherty, NE NE SW Sec. 3-17-27. T.D. 2,319 ft.; ga. 1,000,000 ft. gas; S.I.
English & Harmon No. 1 Stogner, C NW SE Sec. 31-17-31. C.&P.
Etz Bros. No. 5 State, SE NE SE Sec. 16-17-30. Drlg. 2,450 ft.
Farmer & Talimadge No. 1 Hubell, NE SW Sec. 4-18-25. Rng. csg. 307 ft.
Flint Prod. Co. No. 1-L Dexter, SE NW SE Sec. 15-17-30. R.U. mach.
Franklin Pet. Corp. No. 1 McIntyre, NW NE SE Sec. 20-17-38. T.D. 3,348 ft.; C.O. on btm.; re-rng. tbg.
Fullerton Oil Co. No. 3-A Johnson, C NW SW Sec. 35-16-31. Drlg. 3,322 ft.
F. G. Heyes No. 3 Red Gulch, NW NW NE Sec. 16-17-28. R.U. mach.
C. F. Ingram No. 1 Page, NE NE SW Sec. 15-21-28. T.D. 2,844 ft.; tstg.
New Mexico Eastern Gas Co. No. 2 Stephens, SE SE NE Sec. 20-17-38. T.D. 1,931 ft.; swbg. 25 B.O.P.D.
Paton Bros. No. 1 Erwin, C SE SE Sec. 5-18-31. Spd.
Premier Pet. Co. No. 1 Maddren-Beeson, NE SW SE Sec. 28-17-30. T.D. 3,418 ft.; pmp. est. 8 B.O.P.D.
Premier Pet. Corp. No. 2-B Beeson, SW NW SW Sec. 27-17-30. Drlg. 3,190 ft.
Worth Drlg. Co. No. 1 Taylor, C SW SW Sec. 12-18-31. Drlg. 3,527 ft.
Martin Yates, Jr., No. 1 Bowers, SW SE SE Sec. 31-19-27. T.D. 1,180 ft.; rng. csg.
Yates et al No. 1 Yates, C NW SW Sec. 6-18-30. Drlg. 1,909 ft.

Chaves County

E. J. Fisher No. 1 Foster, C NW NW Sec. 7-15-26. T.D. 1,281 ft.; S.D.O.
Nay Hightower No. 1 Billingslea, C SW NE Sec. 28-11-30. T.D. 770 ft.; S.D. for csg.
Interstate Minerals, Inc., No. 1 Dunigan, NW cor. Sec. 15-15-30. T.D. 3,982 ft.; S.D.O.
J. & L. Drlg. Co. No. 2 Hurd, SW Sec. 11-11-26. Drlg. 1,840 ft.

De Baca County

N. F. Woods No. 1 Jones, C NE SW Sec. 17-4n-20. T.D. 190 ft.; S.D.O.
James D. Ward No. 1 Summers, SE NE SW Sec. 15-4n-24e. T.D. 680 ft.; S.D.O.

Roosevelt County

Shell Pet. Corp. No. 1 Harwood, C S½ SE SE Sec. 27-7s-35e. Cg. 4,276-86 ft.

NORTHWEST NEW MEXICO

Bernalillo County

Norins Realty Co., Inc., No. 2 Pajarito, Sec. 22-9n-1e. Drlg. below 700 ft.
Norins Realty Co., Inc., No. 2 North Albuquerque, NE SE NW Sec. 10-11n-4e. Drlg. 4,400 ft.

McKinley County

Pet. Products Corp. No. 5 Santa Fe, SW NE NW Sec. 1-17-9w. Drlg. 1,300 ft.
S. Dysart No. 3-A Govt., NE NW NE Sec. 14-14n-10w. Landed 12½-in. at 1,320 ft.; will cmt.

Rio Arriba County

Oil City Pet. Co. No. 1 Azotea, SW SW NE Sec. 11-31n-2e. Drlg. 333 ft. and U.R. 6¼-in.; through Greenhorn; S.O.&G.

San Juan County

The Continental Oil Co. No. 83 Rattlesnake, SE SW NW Section 1-29n-19w, Rattlesnake field, was completed in Dakota sand at 859-71 feet for 32 bbls. per day.

Jack Amenda No. 1, NE NE Sec. 14-29n-13w. Drlg. 625 ft.
Al Greer No. 2 fee, SW SE SW Sec. 10-30-11w. Drlg. blue sh. 830 ft.
Anna Oil Corp. No. 6 Govt., SW NE NE Sec. 33-30n-11w. S.D. 1,885 ft.; W.O. csg.; S.O. in Farmington sd. but will D.D. to Picture Cliff.
Goodrun & Vincent No. 2 Hare, SE SE Sec. 23-29n-11w. T.D. 1,690 ft.; C.O.; S.G. 1,510-40 ft.; cmtd. 5⅛-in. 1,500 ft.; W.O.C.
Goodrun & Vincent No. 1 Seitzinger, NE NW SE Sec. 23-29n-11w. Drlg. 680 ft.
Ted Whetstine No. 1 McGee, NW NW Sec. 20-30n-11w. S.D. 434 ft. for mat.
Bullock & Noland No. 1 Bunce, SW SE Sec. 24-29n-11w. Drlg. 1,023 ft.
San Juan O. & G. Co. No. 1 Cassidy, C SE SE Sec. 19-29n-11w. Drlg. 828 ft.

San Miguel County

Southwest Drlg., Inc., No. 1 Conchas, NW NE Sec. 34-17n-21e. T.D. 1,450 ft.; prep. run 13⅜-in. for W.S.O.

Socorro County

Central New Mexico Oil Co. No. 1, Belen gr., SE NW Sec. 16-3n-1e. S.D. 2,965 ft. after rng. 12½-in.

Torrance County

Drice Co. No. 1 Garland, NE SE NE Sec. 32-7n-7e, S.D.O.; H.F.W. at 1,405-13 ft.
Estancia Valley Carbon-Dioxide Dev. Co. No. 1 Crawford, SE NE NE Sec. 32-7n-7e. Drlg. 1,080 ft.
Chief O. & G. Co. No. 1 Lee, NW NW SW Sec. 12-6n-7e. T.D. 2,215 ft.; C.O. 300 ft.

Valencia County

Old Spanish Grants, Inc., No. 1 San Clemente, C SE SW Sec. 23-7n-1e. Drk.; W.O. rotary.
C. A. Grober et al No. 1 Fuqua, NE NE Sec. 19-5n-3e. T.D. 840 ft. (C.O.); W.O. title adj.

COLORADO

Adams County

J. B. Furstenberg et al No. 1 Hills, SE SE SE Sec. 27-3s-64w. S.D. 4,370 ft.

Archuleta County

Boone Dev. Co. No. 1 Newton, SE NW SE Sec. 18-33n-1e. T.D. 303 ft.; W.O. 10-in.
Pagosa Oil & Dev. Co. No. 1 Macht, C Sec. 32-36-1w. T.D. 1,840 ft.; rmg. 6¼-in. with bttm. hole pkr. to top Dakota.

Cheyenne County

The California Co. is reported to have taken a block of several thousand acres in the southeastern corner of Cheyenne County on the Kansas line in Township 16s-Range 42 and 43w. Block extends over into Kiowa County. Stanolind Oil & Gas Co. and others have extensive acreage along the boundary, some of which extends over into Greeley County, Kansas.

Elbert County

Plymouth Oil Co. No. 1 Brosky-Union Pacific, C SW SW Sec. 19-10s-60w. Drlg. 6,910 ft. in blk. sh.

Fremont County

R. E. Hawks No. 1 Orndoff, NE SW NE Section 3-19s-70w, in the Canon City district, was completed at 1,988 feet for 2½ bbls. per day from the shale. This is a part of the Florence field.

Stanley Thomas No. 1 Rickwalt, SE SE Sec. 2-19s-70w. Drlg. 2,450 ft.

Garfield County

Roaring Fork Oil Co. No. 1 Patterson, C NE Sec. 36-7s-88w. S.D. 2,008 ft. for winter after W.S.O. with 5⅛-in. at 1,757 ft.

LaPlata County

N. Spatter No. 1-X Bryce, SE SW SW Sec. 31-33n-9w. Drlg. 2,180 ft.; S.G. 2,140 ft.

Las Animas County

Hulme-Johnston-Allison No. 1 Azar, SE SE NW Sec. 27-34s-58w. S.D. below 665 ft. acct. weather.

Moffat County

The Mounain Fuel Supply Co. No. 1 Kuykendall, NE NE SE Section 22-12n-100, Hiawatha gas field, an old gas well deepened and put on production two months ago through perforated casing at 2,472-83 feet, is still making around 80 bbls. of oil per day.

Stanolind O. & G. Co. No. 35-SD Parkinson, SE SE NE Sec. 22-4n-92w. Cg. 3,398 ft.
Isenberg-Parker-Myers No. 1 Myers-State, NW SE NE Sec. 36-4n-103w. Drlg. 125 ft.; carrying 12½-in. at 50 ft.
C. R. Provett No. 1 Sutton, NE NE SW Sec. 1-5n-96w. S.D. 860 ft. for 8¼ in.
MacKinnie Oil & Drlg. Co. No. 1 Coles, SW SW SE Sec. 1-3n-92w. T.D. 3,032 ft.; top Morrison 3,017 ft.; U.R. 6¼-in. for W.S.O. in Dakota.

Mesa County

Continental Oil Co et al No. 1 Miller, SW SW NW Sec. 36-8s-91w. S.D. 9,410 ft. for winter.

Montezuma County

McElmo Oil Co. No. 1 West, NE NW NW Sec. 31-36s-17w. Drlg. 4,815 ft.

Park County

South Park Oil Co. No. 1 Lemar, NE NE SE Sec. 34-11s-75w. Drlg. sdy. sh. 6,462 ft.

Prowers County

Continental Oil Co. No. 1 Ruby, C NE NW Sec. 31-21s-44w. S.D. 5,434 ft.

Pueblo County

C. E. Puckett No. 1 Barber, NW Sec. 35-21s-66w. Drlg. 810 ft.
Eden O. & G. Co. No. 1 Horse Creek, SW SE Sec. 29-19s-64w. Drlg. 1,880 ft. in wet hole, carrying 6¼-in.; 1,200 ft. W.I.H. from Dakota.

Rio Blanco County

Buford Oil Co. No. 1 Govt., C SW SW Sec. 16-1n-91w. Drlg. gr. sh. 3,475 ft.

Routt County

L. C. Craig and E. L. Moore No. 1-X Erwin, C SW NE Sec. 33-7n-85w. S.D. 165 ft. for winter.
Mid-Colorado Pet. Co. No. 1 Omholt, NE NE SE Sec. 29-4n-87w. S.D. 2,140 ft. for winter.
Steamboat Springs Drlg. Synd. No. 1 Brown, C NW NW Sec. 1-6n-86w. Drlg. 1,675 ft. in Sundance; top 1,620 ft.; H.F.W.

WYOMING

A decision of great importance to oil men not only on account of the amount of money involved, but because of the technical issues, was handed down by federal District Judge T. Blake Kennedy at Cheyenne in the case of Richard and Barbara Cooper, of London, England, and Laramie, Wyo., against the Ohio Oil Co. The plaintiffs sought to recover $5,500,000 in damages from the oil company for the alleged drainage of their land in the Rock River field in Carbon County, by the company's development of adjacent land. The court ruled that the plaintiffs had no recourse. The decision, which was in favor of the Ohio company, contained 21 pages. It is expected that it will be appealed.

The Coopers' land is on the top of the structure and the field was developed around the flanks in accordance with more modern practices for obtaining the greatest

ultimate recovery, but not under a unit agreement. The method caused the forming of a gas cap in the top of the dome and the plaintiffs alleged that because of this their land was drained of between 4,000,000 and 5,000,000 bbls. of oil which otherwise might have been recovered. The issues involved were highly technical and numerous experts gave elaborate testimony. More than 400,000 words of testimony, including over 200 maps and 1,500 pages of transcribed testimony was presented. Only a carefully prepared summary will give a clear picture of the technical issues involved. The list of witnesses resembles a roster of engineers, geologists and other experts of the industry.

Big Horn County

Taylor Oil Co. No. 1 Sheets-Govt., SE NE SE Sec. 9-55n-96w. Spdg. 100 ft. Byron field (first report).
Yale Pet. Co. No. 2 Allen, Lot 52 (approx. SW NW SW Sec. 34-56n-97w). Drlg. 2,330 ft.
Kirk Oil Co. No. 1 Frisby, C SW SE Sec. 11-49n-94w. Drlg. 750 ft.
A. L. Rankin No. 1 Karjajla-Rankin, C SW NW Sec. 10-54n-94w. T.D. 590 ft.; P.B. to Embar sd. 555-575 ft. and acid. 500 gals. without results; S.D.O.
Prescott & Mileski No. 1 Govt., NE NW SW Sec. 15-1n-93w. Cmtd. 8¼-in. at 1,027 ft.; W.O.C.
Clifford S. Johnson No. 1 Johnson, CEL NW NW Sec. 24-51n-93w. Rig; W.O. engine.
Joan Oil Co. No. 1 Howell, NE NW NE Sec. 32-55n-97w. T.D. 2,470 ft.; str. crkd. hole.
John H. Thomas No. 1 Govt., SW SW SE Sec. 3-54n-94w. Drlg. 920 ft.

Campbell County

Frye & Kreiner No. 2, CSL NW NW Sec. 6-50n-72w. Landed 5 5/16-in. on bttm. at 723 ft. and S.D.

Carbon County

Sinclair-Wyo. Oil Co. No. 4 Mahoney, CNL NE SW Sec. 34-28n-88w. Drlg. 2,292 ft.
Ohio Oil Co. No. 3-A Baker, SW NW SW Sec. 3-23n-79w. T.D. 1,786 ft.; gas killed; installing control equip.; to S.O.W. and complete as gas well.
C. D. Cunningham et al No. 1 Union Pacific-fee, NW SE NE Sec. 21-22n-78w. Drlg. blk. sh. 1,010 ft.
Ohio Oil Co.-California Co. No. 5-A Kyle, C NW NE Sec. 26-21n-79w. T.D. 5,649 ft. in sat. sd.; cmtd. 7-in. 5,627 ft. 400 sacks; W.O.C.
Producers Oil Co. No. 1 Lake Valley, 200 ft. CNL Sec. 14-20n-88w. T.D. 1,916 ft.; prep. to run 10-in.

Converse County

Jack Ackard, Colby, Kans., is starting his third wildcat in the Douglas district. The new operation is on the Carey ranch.

John Ackard No. 1 Carey, SW NW SW Sec. 19-33n-73w. Drlg. 210 ft. (first report).
Chas. Wheeler et al No. 1 Fitzhugh, NW Sec. 19-31n-71w. Drlg. r.b. 200 ft.; 10-in. on bttm.
H. O. Emery et al No. 2 Roberts, C SW SE Sec. 2-31n-70w. Drlg. 254 ft.; S.G.
Jack Decker et al No. 1 Simonson, NW NE SE Sec. 16-32n-68w. S.D. 640 ft. for csg.
Wyshawn Oil Co. No. 2 Lindley, C SW SW Sec. 35-32n-69w. T.D. 2,390 ft.; rmg. 10-in. from 1,760 ft. to bttm.
Fred Bunker No. 1 Pestal, SE NE NE Sec. 32-32n-69w. T.D. 483 ft.; prep. to run csg.
New Era Fuel Co. No. 2 Mary Gasper, CNL NW SW Sec. 25-32n-69w. S.D. 670 ft. without tstg.
Wyshawn Oil Co. No. 1 Lindley, NW SE SE Sec. 34-32n-69w. Drlg. 2,500 ft. in Leo sd.; S.O.&G. in hd. sd. at top.
Wyo.-Southern Oil Co. No. 1 Winda, SW NE NW Sec. 6-31n-69w. Loc.
Blue Ridge Oil Co. No. 1, SW NW SE Sec. 29-32n-69w. Spd. and S.D.

Fremont County

The Lincoln Oil & Gas Co. No. 2 Tribal, NE SE SW Section 23-1s-1e, Plunket field, was dry and abandoned at 950 ft. Location is one-fourth of a mile southwest of No. 1 Tribal, completed in September at 480 feet for 15 bbls. per day of 40-gravity green oil. Location has been made for No. 3 Tribal to the southeast of No. 2. Leases were purchased from the Government last summer and the wells are the first drilled in the field for many years.

The Yellowstone Oil Co. No. 1 Government, SW NE NW Section 27-38n-93w, in the Shoshoni district, was drilled to 740 feet and plugged back and completed in water sand at 651-670 feet. Water will be saved for future drilling.

Lincoln Oil & Gas Co. No. 3 Tribal, SW SW SE Sec. 23-1s-1e. Spdg. 35 ft. (first report).
Frank Pouppirt No. 1 Fidelity, Tr., SW NE SW Sec. 27-3n-1w. Drlg. 1,168 ft.; C.D.
Tropic Oil Co. No. 1 Govt., C SE SW Sec. 34-27n-90w. S.D. 3,430 ft.
Consolidated Oil Properties No. 3 Ewart, C SW SE Sec. 16-1n-1w. S.D. 1,150 ft.
Ben Stewart No. 1 Darnell, NE SE Sec. 26-3n-1w. S.D. 2,245 ft. for 7-in.
C. E. Nelson No. 8 fee, CWL NE SW Sec. 27-3n-1w. S.D. 1,200 ft.; S.O. 1,095 ft.

Hot Springs County

Freudental et al No. 7 Patd., NE Tr. 51-B, Sec. 21-43n-92w. Drlg. 275 ft. (first report, Kirby Creek district).
Italo Pet. Co. No. 1 Skelton-Govt., SE SW NE Sec. 13-44n-98w. T.D. 1,800 ft.; recmtd. 10-in. 1,750 ft.

Lincoln County

H. C. Harris et al No. 1 Govt., SE NW NW Sec. 23-21n-117w. T.D. 1,090 ft.; U.R. 10-in.

Natrona County

The General Petroleum Corp.'s second well on the Cole Creek structure, its No. 1 State, 1¼ miles north of the discovery, is at a critical stage at 6,793 feet and close to the top of the first Wall Creek. It is planned to run and cement the 8⅝-inch before coring or drilling into the sand. Derrick foundations have been run for No. 2 State, two locations to the north. This was done in order to get foundations in before freezing weather should it decide to drill another well this winter.

General Pet. Corp. No. 2 State, NW SE NE Sec. 16-35n-77w. Dk. foundations run.
General Pet. Corp. No. 1 State, NW NE SE Sec. 16-35n-77w. Cg. 6,793 ft.
Stanolind O. & G. Co. No. 29 Tensleep, C SW NW Sec. 35-40n-79w. T.D. 3,990 ft.; cmtd. 6⅝-in. liner at 3,660-3,984 ft.

Niobrara County

The Adams Oil & Gas Co.-Felmont Corp. No. 1 Baker, half a mile east and two locations south of the Continental Oil Co. No. 1-B Dielman, the next important well to be completed in Lance Creek, is under way and drilling below 1,255 feet. Final test on No. 1-B Dielman showed 108 bbls. per hour and it was given a rating of 2,200 bbls. per day. MacKinnie No. 4 Thompson, the west offset, made 102 bbls. per hour after cleaning up. These two wells added between 500 and 600 acres to the proven area for the Leo sand.

The Fall River Royalty & Producers Co. No. 9-B Government, SW SE SE Section 35-40n-61w, West Mule Creek, was completed in the Lakota sand at 282 feet for 15 bbls. per day. No. 10-B Government is spudding.

Fall River Roy. & Prod. Co. No. 10-B Govt., CNL SE SE Sec. 35-40n-61w. Spdg. 60 ft. (first report).
Ohio Oil Co. No. 1 Jones, SE NE SE Sec. 30-35n-62w. Cg. 1,510 ft.
J. E. Manning No. 1 Hewitt-Govt., NW SW SW Sec. 4-35n-65w. Loc.
Cow Gulch Oil Co. No. 1 MaGoon, NE NE Sec. 33-35n-64w. Drlg. 500 ft.; 3 ft. of coal at 230 ft.; 5 ft. W sd. at 245 ft.
Ohio Oil Co. No. 6 Cash O.P.C.-2, NW NW NE Sec. 4-35n-65w. T.D. 5,382 ft.; top Leo sd. 5,370 ft.; cmtd. 7-in.
Fall River Royalty & Producers Co. No. 1 Govt., CSL SE SE Sec. 35-40n-61w. Drlg. 610 ft.
H. D. Moore et al No. 1 Bergrem, NW Sec. 23-35n-63w. S.D. 1,740 ft.; wtr. in top Converse sd. at 1,660 ft.
Adams O. & G. Co. No. 1 Baker, NW NE SW Sec. 8-35n-65w. Drlg. 1,235 ft.
Continental Oil Co. No. 2-B Dielman, NE NW NE Sec. 8-35n-65w. Drlg. r.b. 4,790 ft.; top r.b. 4,290 ft.

Park County

Blue Ridge Oil Co. No. 1 Mau, NE NE SW Sec. 25-58n-98w. Loc.
Stanolind O. & G. Co. No. 18 Elk-5, NW NE NW Sec. 30-58n-99w. Cmtd. 10¾-in. 232 ft.; W.O.C.
Resolute Oil Co. No. 2 State, C SW SW Sec. 16-57n-101w. Cg. Frontier 8,763 ft.

Platte County

Bill Griffin et al No. 1, NE SE NE Sec. 18-30n-67w. S.D. 550 ft.

Sublette County

Texas Co.-Frontier Pet. Co. No. 1 Unit, SE SE SW Sec. 1-28n-114w. T.D. 6,155 ft.; ready to res.
Yellowstone Oil Co. No. 1, 200 ft. N of S line of the H. L. Budd ranch, SE SE Sec. 31-13n-112w. S.D. 10 ft.
Progressive Oil Co. No. 1 Haddenham, C NE SE Sec. 21-28n-113w. Drlg. 832 ft.

Sweetwater County

Sinclair-Wyo. Oil Co. 81, SW NW NW Sec. 11-26n-90w. R.U.R. (first report).
Sinclair-Wyo. Oil Co. No. 80, NE NE NE Sec. 11-26n-90w. T.D. 1,943 ft. in sat. sd.; top Sundance 1,923 ft.; R.U.C.T.

Uinta County

Stove Creek Oil Co. No. 3 Govt., CWL SW NW Sec. 26-14n-119w. Drlg. 50 ft. (first report).
Stove Creek Oil Co. No. 1 Govt., NE SW NE Sec. 26-14n-119w. Drlg. 1,700 ft.
Stove Creek Oil Co. No. 2 Govt., C SW NW Sec. 26-14n-119w. S.D. 350 ft.

Washakie County

Paul Boether No. 1 Govt., SW NW Sec. 4-47n-90w. T.D. 1,700 ft.; drlg. plug; W. in first Frontier 1,205-23 ft.
Frison Oil Co. No. 2 Govt., SE SW NE Sec. 24-47n-90w. Drlg. 145 ft.

Weston County

Osage production in October was 23,585 bbls. and refiners took 22,300 bbls. Oil in storage is sufficient to keep refineries operating in event field has to shut down on account of weather. One new operation is getting under way in the Salt Creek district to the southeast of Osage in James Farrell No. 1 Government.

James Farrel No. 1 Govt., NE SE SE Sec. 2-44n-61w. Drlg. 74 ft. (first report).
Lem Johnston No. 1, C SE SW Sec. 31-44n-62w. Loc.
Selby & Langford No. 1, CNL NW SE Sec. 6-46n-63w. S.D. 60 ft.; repairs.
Geo. Keisling No. 1, SE SE NW Sec. 26-46n-64w. Drlg. below 1,900 ft.
Whedon et al No. 1, Sec. 21-46n-64w. Drlg. below 300 ft.
F. R. Dilger, Tr., No. 16, SW SW NE Sec. 30-46n-63w. T.D 1,402 f.; recmtd. csg.
West Osage Oil Co. No. 3, SW SE NE Sec. 15-46n-64w. Hd. tight sd. 2,140-54 ft.; will shoot.
John Borophy No. 1 George, SW SE NW Sec. 26-48n-64w. Drlg. 2,240 ft.

MONTANA

Big Horn County

Buzetti & Corkins No. 1, NE NW Sec. 23-1s-32e. M.I.M.

Blaine County

G. R. Teeters No. 1 Stam, CSL SW SE Sec. 10-31n-18e. (Formerly R. E. O'Keefe). S.D. 860 ft. for csg.; top Eagle 630 ft.

Carbon County

R. C. Tarrant No. 2, SE NW Sec. 4-6s-18e. T.D. 2,410 ft.; cmtd. 8¼-in. 2,381 ft.
Henderson Prod. Co. No. 1-H-11 Elk 11, SE SE NW Sec. 35-9s-23e. S.D. 1,810 ft.
Sha-Wha Pet. Co. No. 1 Govt., SW NW NE Sec. 35-9s-23e. S.D. 3,124 ft.
Miragle Oil Co. No. 2 Govt., CWL NE SE Sec. 4-6s-23e. T.D. 2,337 ft. (C.D.); C.O. to res.; will U.R. to bttm. and set csg.

Cascade County

E. B. M. Oil Co. No. 1 Betts, CSL NW SE Sec. 34-18n-4e. T.D. 1,250 ft.; prep. to res.

Choteau County

Security Pet. Corp. No. 1 Johnson, C NE Sec. 23-26n-3e. S.D. 1,991 ft.; S.D. for 6⅝-in.; Sunburst 1,935-53 ft.

Dawson County

Frank C. Hughes No. 1 fee, NW NE SE Sec. 5-14n-55w. Drlg. 1,065 ft.

Daniels County

White Tail O. & G. Co. No. 2 Wiley, NW NW NW Sec. 10-36n-50e. Drlg. 1,928 f.

Fallon County

Montana-Dakota Utilities Co. No. 45, Unit 7, SE NW SW Sec. 25-6n-60e. Drlg. 320 ft.

Fergus County

Baughman & Singley No. 1 Skaggs, C NW SW Sec. 7-15n-20e. S.D. 1,080 ft. (C.D.); in lower Quadrant.
Emmons et al No. 5 Stocker, SW NW SW Sec. 24-22n-18e. Drlg. 950 ft.

Judith Basin County

Fletcher E. Hunt No. 1 Hoven, SE NE NW Sec. 30-14n-15e. Spdg.

Glacier County

Cut Bank had two completions. K. D. Pardee No. 2 Tribal-179, CEL NE SE Section 12-32n-6w, in the southern part of the field, swabbed 100 bbls. first eight hours at 2,882 feet, total depth, and was making 5½ bbls. per hour at the end of the period. It is a south offset to Willian Hanlon No. 1 All.-128, which made 250 bbls. first 24 hours and two locations east and north of Pardee No. 1 Tribal-179 which had only 350 feet of oil in the hole. However, an offset to the last named, Hanlon No. 2, made 395 bbls. first 24 hours. Pardee No. 2 Tribal had the Cut Bank sand at 2,847-80 feet. There was no Sunburst sand.

C P. Castle No. 4 State, CNL SW SW Section 36-35n-6w, flowed and swabbed 20 bbls. first 24 hours at 2,782 feet from the Cut Bank at 2,750-76 feet. It had 2,000,000 feet of gas at 2,760-66 feet and oil at 2,766 feet.

Yukon Oil Co. No. 1 Lungren, SE SE SW Sec. 23-37n-5w. Drlg. 250 ft. (formerly Santa Rita).
Texas Co. No. 3 Curran, NE NE NW Sec. 8-32n-5w. Drlg. 1,750 ft.
Consolidated Gas Co. No. 1 Tribal, NW NE NW Sec. 18-32n-5w. T.D. 1,920 ft.; fsg.
Glacier Prod. Co. No. 3 Van Ormer, CEL NW Sec. 17-33n-5w. Drlg. 2,825 ft.
Glacier Prod. Co. No. 1 Parker Unit, C N½ Sec. 28-34n-5w. T.D. 2,630 ft.; fsg.; 7-in. 2,620 ft.
Santa Rita O. & G. Co. No. 3 Lander, C S½ SE Sec. 16-35n-6w. Loc.

Park County

Ben Ryan et al No. 1 Burgess, SE SW NW Sec. 28-2s-11e. Drlg. 1,550 ft.

Petroleum County

H. Clark Rowland No. 1 Brundidge-Mink, SE NW Sec. 35-14n-25e. Skdg. rig from No. 1 Kalispel.
Watson Oil Co. No. 1 Austed, SW NW SE Sec. 22-13n-28e. Drlg. 800 ft.
O. B. Canfield No. 2 Govt., SE NE NE Sec. 21-17-24e. Drlg. 779 ft.

Phillips County

The Treasure State Pool Oil & Gas Co. No. 4 Government, C SE SW Section 2-24n-23e, Bull Creek district, was plugged and abandoned at 1,100 feet. It had water in the top of the Madison.

Richland County

W. M. Fulton No. 1 Richardson, SW SW SE Sec. 29-26n-52e. Drlg. 540 ft.; small S.W. at 435 ft.

Teton County

Zodiac Oil Co.-Gulf States Oil Co. No. 1 Kellogg, NE NW NE Sec. 33-28n-5w. Drlg. 375 ft.
Gulf States Oil-Zodiac Oil Co. No. 1 Coffee-Wallenstein, SW SW SW Sec. 5-27n-5w. T.D. 2,525 ft.; drlg. by bit.

Toole County

Lewistown-Flathead Oil Co. No. 2 Bashor, SE NW SE Sec. 9-35n-1w. T.D. 1,791 ft.; contact 1,786 ft.; S.O. and W.; acid. 500 gals.; no test.
Platt-Bell No. 1 Govt., SW NW NE Sec. 9-34n-2w. S.D. 455 ft.
C. L. Smith, Agt., No. 1 Govt., SW SE NW Sec. 13-35n-2w. S.D. 840 ft.
Big West Oil Co. No. 4 Engle, SW SW SW Sec. 1-35n-3w. T.D. 1,903 ft.; contact dry at 1,860 ft.; will P.B. and complete in Sunburst.
Aspen O. & R. Co. No. 1 Govt., C NE SE Sec. 25-36n-3w. T.D. 2,050 ft.; U.R. 7-in. for W.S.O.
W. M. Cassidy No. 1 Phoenix, CNL NW NW Sec. 28-35n-4w. S.D. 2,285 ft.
Fulton-Commonwealth No. 2 Thompson, NW NE SW Sec. 28-35n-3w. T.D. 1,630 ft.; will run 7-in. and drill into Ellis.
H. C. Morton No. 8 Morton, C SW NW Sec. 24-34-2w. S.D. 1,440 ft.; good S.O. after acid.
Chas. Grant et al No. 1 Anderson, SE NE NE Sec. 26-35n-4w. S.D. 2,109 ft.
Colonel Kevin Oil Co. No. 1 Govt., SW NE NE Sec. 27-

(Continued on Page 82)

California Field Report

By
L. P. STOCKMAN

Pool Opened in Coles Levee Area; New Deep Pay Horizon

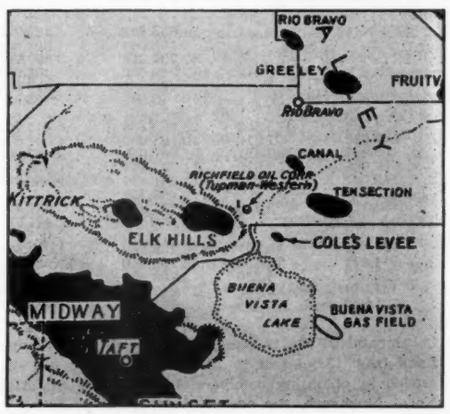
LOS ANGELES, Calif., Nov. 21.—Discovery of a new oil field in the Coles Levee district of Kern County, where Ohio Oil Co. No. 1-F Kern County Land was completed flowing 826 bbls. of 44.5-gravity oil and 5,712,000 feet of gas per day, and discovery of a new deeper zone in the west end of the Montebello field of Los Angeles Basin, where Hathaway Oil Co. finished No. 1 Dore, flowing 500 bbls. of 36.1-gravity oil and 320,000 feet of gas per day, featured developments in California during the past week.

Richfield Oil Corp. may discover a field in the Tupman district of Kern County where its No. 1 K.C.L.-Western in Section 5-30-28, is coring ahead in search of the main body of oil sand believed to exist in this area. A satisfactory water shutoff was effected on the 8⅝-inch water string landed at 8,406 feet, and the bit is at present going ahead at 8,523 feet. A formation test showed the well capable of flowing 7,000,000 feet of gas and a small amount of 52-gravity oil, but a later formation test resulted in a recovery of 250 feet of badly gas-cut mud and a small amount of oil with the tester open for one hour.

Ohio Oil Co.'s discovery well in the Coles Levee district is located in Section 10-31-25, and was bottomed in the pay at 9,365 feet. The well is producing from about 145 feet of zone which is believed to be the equivalent of the Stevens zone of upper Miocene age similar to that found highly productive by Shell in the Ten Section field, Shell and Ohio in the Canal field and by Standard Oil Co. in the Greeley field. Ohio's new well is located about 3½ miles southwest of the Ten Section field and approximately 1½ miles south of Richfield Oil Corp.'s wildcat in the Tupman area. These two wells are, however, located on separate structure. Completion of Ohio's initial well in the Coles Levee district marked the discovery of two oil fields in California by Ohio Oil Co. within one year. On November 20, 1937, Ohio discovered the Canal field of Kern County by finishing a well flowing 2,265 bbls. of clean 36.9-gravity oil per day. In the Coles Levee field, Ohio Oil Co. has 1,920 acres under lease and will undoubtedly follow the conservative method of development that has been carried out in the Canal field. No. 1-F Kern County Land was finished with an 8⅝-inch water string landed at 9,220 feet and 171 feet of 4½-inch liner including 139 feet of 100 mesh perforated landed at 9,364 feet and 9,234 feet of 2½-inch tubing. The discovery well has an elevation of 306 feet and the structure was located as the result of geological mapping and seismograph survey. Out of four structures located by seismograph crews for Ohio two are proven oil fields, one a possible gas field in the Willows section of Glenn County where the discovery well blew out and destroyed the drilling equipment and the other a possibility with additional drilling.

New Montebello Zone

Hathaway Oil Co. uncovered a new productive horizon in the west end of the Montebello field of Los Angeles Basin when No. 1 Dore was completed flowing 500 bbls. of 36.2-gravity oil and 320,000 feet of gas per day from 7,181 feet. The well is in the extreme southwestern end of the area now under development. Early in the past week it was swabbed in flowing 200 bbls. of oil cutting about 25 per cent mud and salt water. The crew pulled the tubing and reran it with a packer and the well cleaned up. No. 1 Dore is flowing through a 32/64-inch bean and shows a casing pressure of 1,000 pounds with the tubing pressure varying from 50 to 350 pounds. The hole was finished with a 7-inch water string landed at 7,034 feet and 164 feet of 5½-inch perforated liner. The new productive zone is in rocks of Miocene age. St. Helens Petroleum Co. proved the existence of production in the fifth and sixth zones last year and while the new zone found by Hathaway Oil Co. is the seventh found up to the present some engineers believe it possible that an intermediate zone will be found higher up on the structure. It may only be a matter of a few weeks until this is definitely decided in as much as Gus Pongratz, Brookline Oil Co. and Montebello Wasco Oil Co. have already started deepening their respective wells in search of this new horizon. During the early part of the week, Herley-Kelly, Inc., recompleted No. 1 Masser, flowing 1,750 bbls. of clean 36.9-gravity oil and 1,800,000 feet of gas per day from the fourth



Ohio Oil Co. has discovered a new oil and gas field in the Coles Levee district of Kern County along the northern edge of Buena Vista Lake. The discovery well flowed 825 bbls. a day

finger of the sixth zone. This well which is bottomed at 6,690 feet is flowing through a 72/64-inch bean. No. 1 Masser is located at Lincoln and Maple and Hathaway Oil Co.'s deep zone discovery is situated at Beverly and Maple. Union Oil Co., which has just completed a new rig for No. 1 Calkins in the eastern end of the western extension of the Montebello field, has finished grading location for No. 4 Howard & Smith which will be drilled 573 feet east and 510 feet north of the center line of Beverly and Maple. Standard Oil Co., which recently completed No. 3 Braun, has resumed drilling and will carry the well down to the lower sixth zone.

Rio Bravo

In the Rio Bravo field of Kern County, Union Oil Co. completed No. 6-34 Kern County Land in Section 34-28-25, flowing 4,300 bbls. of 40.4-gravity oil and 3,353,000 feet of gas per day from 11,514 feet. The hole was finished with a 7-inch water string landed at 11,262 feet and 295 feet of 5-inch liner including 233 feet of perforated and 11,170 feet of 2½-inch tubing. Top of the pay was logged at 11,290 feet and the well brought in flowing through a 27/64-inch bean back on which it showed a tubing pressure of 1,925 pounds and a casing pressure of 1,950 pounds. Superior Oil Co. recompleted No. 1 Geissinger flowing 1,898 bbls. of clean 41.5-gravity oil and 1,958,000 feet of natural gas per day after deepening the hole to 11,480 feet. This is the second well that Superior has deepened in this field during the past month, the move being made to give maximum penetration to the earliest wells that were bottomed higher up in the hole because at the time of their completion the thickness of the zone was unknown. No. 1 Geissinger, in Section 35-28-25, was finished with 260 feet of 4¾-inch liner including 238 feet of perforated and brought in flowing through an 18/64-inch bean under a tubing pressure of 1,950 pounds and a casing pressure of 1,900 pounds.

North Belridge

Belridge Oil Co., founded a number of years ago by Max Whittier and associates, completed two excellent producing wells in the Wagonwheel zone of Eocene age in the North Belridge field this week and is starting two additional wells. No. 27-19 and No. 27-31 are in Section 27-27-20, and were finished within a few feet of each other. The former was brought in flowing 2,550 bbls. of 31.1-gravity oil and 2,300,000 feet of gas while the latter was finished flowing 2,295 bbls. of 30.9-gravity oil and 2,490,000 feet of gas. No. 27-19 was bottomed at 8,490 feet, finished with a 9-inch water string landed at 8,172 feet and brought in flowing through a 96/64-inch bean. No. 27-31 was finished with a 9-inch water string landed at 8,138 feet and 353 feet of 4¾-inch liner including 312 feet of perforated and 8,450 feet of 3-inch tubing. Both wells have been beaned back. Belridge Oil Co., despite its large potential in this field, is producing far below its allowable as set by Umpire J. R. Pemberton.

Rosecrans

Two new wells were completed in the Rosecrans field this week but the important development in this field is the relatively large number of new wells that are being started after deep zone development of the district has been under way for several months. Recent completions around the edge of the structure have gradually extended the productive limits until at present the southern limit is still undetermined as far as the deep O'Dea zone is concerned. The two new wells were Royalty Service Corp. No. 2 Gordon flowing 1,520 bbls. of 36.1-gravity oil and 1,750,000 feet of natural gas per day and No. 11 Rosecrans of Barnsdall Oil Co., finished flowing 669 bbls. of 35.8-gravity oil and 2,670,000 feet of natural gas daily. The former which was carried down to 7,783 feet and plugged back to 7,635 feet was brought in flowing through a 46/64-inch bean and shows a tubing pressure of 250 pounds and a casing pressure of 1,100 pounds. Barnsdall Oil Co. No. 11 Rosecrans was bottomed at 7,645 feet and brought in flowing through a 20/64-inch bean and showed a tubing pressure of 875 pounds and a casing pressure of 1,340 pounds. Superior Oil Co. has concluded drilling operations on No. 12 Maxwell after topping the O'Dea zone at 7,679 feet and then landing a water string at 7,613 feet.

Torrance

Standard Oil Co. completed two new wells in the Lomita section of the Torrance field this week, both on the Marble lease. No. 2-9 was completed flowing 260 bbls. of 25.1-gravity oil and 11 bbls. of water per day from 4,950 feet after the hole had been carried down to 4,990 feet and then plugged back. Well No. 2-10 Marble was brought in flowing 210 bbls. of 26.8-gravity oil cutting 2 per cent with bottom of the hole at 4,965 feet. No. 2-9 Marble was finished with 176 feet of 6⅝-inch liner including 134 feet of perforated landed at 4,950 feet and 4,858 feet of 2½-inch tubing while No. 2-10 Marble was finished with 198 feet of 6⅝-inch liner.

Harbor City

Ring Oil Co. has established a new record for the Harbor City field by drilling No. 5 Hawkins from spud to completion at 5,235 feet including the landing of a 7-inch water string at 5,088 feet in 12 days and 7 hours. Operators have heretofore taken from

TANKER SHIPMENTS FROM LOS ANGELES TO DOMESTIC AND FOREIGN PORTS

	November 12		November 5			
	Total this week	Daily average	Total last week	Daily average	This year to date	Same time last week
Intercoastal-domestic—						
Crude oil	.....	.....	.....	.....	852,826	129,788
Diesel and gas oil	.....	.....	.....	.....	.....	176,726
Gasoline	73,960	10,566	.....	.....	2,705,801	3,666,922
Kerosene	.....	.....	.....	.....	333,626	328,907
Foreign exports—						
Crude oil	362,591	51,799	643,091	91,870	19,159,645	13,650,701
Fuel oil	25,148	3,593	235,549	33,650	7,880,045	12,484,415
Diesel and gas oil	3,028	433	.....	.....	5,121,384	6,819,416
Gasoline	.....	.....	356,400	50,914	6,954,602	6,917,675
Kerosene	.....	.....	49,362	7,052	945,528	2,003,872
Lubricants	.....	.....	.....	.....	175,560	12,984
Other unfinished oil	.....	.....	.....	.....	.....	974,785
Coastwise-domestic—						
Crude oil	221,266	31,609	117,608	16,801	10,238,809	4,972,427
Fuel oil	236,486	33,784	238,194	34,028	10,601,752	13,731,492
Diesel and gas oil	63,321	9,046	25,139	3,591	1,385,609	1,999,560
Gasoline	186,594	26,656	320,814	45,831	12,810,375	13,851,515
Kerosene	12,259	1,751	.....	.....	222,890	368,080

TANKER SHIPMENTS FROM SAN FRANCISCO TO DOMESTIC AND FOREIGN PORTS

Intercoastal-domestic—						
Diesel and gas oil	.....	.....	.....	.....	196,644	222,330
Gasoline	.....	.....	.....	.....	25,409	25,778
Kerosene	.....	.....	.....	.....	16,124	72,750
Asphalt	.....	.....	.....	.....	490,039	413,885
Lubricants	.....	.....	.....	.....	19,945	25,522
Foreign exports—						
Crude oil	.....	.....	151,845	21,692	4,740,491	2,896,582
Fuel oil	.....	.....	27,061	3,866	2,288,614	1,818,155
Diesel and gas oil	.....	.....	303,945	43,421	2,866,135	2,667,830
Gasoline	.....	.....	62,268	8,895	4,788,805	4,911,365
Kerosene	.....	.....	.....	.....	696,099	851,871
Asphalt	.....	.....	.....	.....	56,258	.....
Lubricants	.....	.....	40,112	5,445	525,679	474,494
Coastwise-domestic—						
Fuel oil	179,211	25,602	276,277	39,468	5,597,658	5,583,260
Diesel and gas oil	.....	.....	33,168	4,738	1,352,472	1,292,698
Gasoline	83,714	11,959	113,760	16,251	6,837,422	4,974,549
Kerosene	.....	.....	25,932	3,705	542,778	368,326

TOTAL TANKER SHIPMENTS FROM CALIFORNIA TO DOMESTIC AND FOREIGN PORTS

Intercoastal-domestic—						
Crude oil	.....	.....	.....	.....	852,826	129,788
Diesel and gas oil	.....	.....	.....	.....	196,644	399,056
Gasoline	73,960	10,566	.....	.....	2,731,210	3,692,700
Kerosene	.....	.....	.....	.....	349,750	401,657
Asphalt	.....	.....	.....	.....	490,039	413,885
Lubricants	.....	.....	.....	.....	19,945	25,522
Foreign exports—						
Crude oil	362,591	51,799	794,936	113,562	23,900,136	16,547,283
Fuel oil	25,148	3,593	262,610	37,516	10,168,659	14,302,570
Diesel and gas oil	3,028	433	303,945	43,421	7,987,519	9,487,246
Gasoline	.....	.....	418,668	59,810	11,743,407	11,829,040
Kerosene	.....	.....	49,362	7,052	1,641,627	2,855,743
Asphalt	.....	.....	.....	.....	56,258	.....
Lubricants	.....	.....	40,112	5,730	701,239	487,478
Other unfinished oil	.....	.....	.....	.....	.....	974,785
Coastwise-domestic—						
Crude oil	221,266	31,609	117,608	16,801	10,238,809	4,972,427
Fuel oil	415,697	59,385	514,471	73,496	16,199,410	19,314,752
Diesel and gas oil	63,321	9,046	58,307	8,330	2,738,081	3,292,258
Gasoline	270,308	38,615	434,574	62,082	19,647,797	18,826,064
Kerosene	12,259	1,751	25,932	3,705	765,677	736,406

three to four weeks for similar work. No. 5 Hawkins was completed flowing 420 bbls. of 29.2-gravity oil per day through a 24/64-inch bean and at last reports was showing an increasing tendency. R. R. Bush Oil Co. completed No. 2 Gimenez, flowing 290 bbls. of 29.1-gravity oil per day from 5,280 feet. Sunset Oil Co. (rejuvenated Sunset Pacific Oil Co. and Julian Petroleum Co.), secured its first producing well in this field early in the week when No. 1-T Security was finished, flowing 252 bbls. of 29.3-gravity oil per day with bottom of the hole at 5,304 feet. The hole was washed with acid previous to completion. The Caminol Co., Ltd., completed No. 3-14 Torrance in the Harbor City field flowing 205 bbls. of 29.1-gravity oil through a 25/64-inch bean from 5,295 feet.

Wilmington

General Petroleum Corp. completed No. 17 Southern Pacific flowing 1,410 bbls. of 21.4-gravity oil per day through a 36/64-inch bean from 4,103 feet. Pacific Western Oil Co. recompleted No. 1 Wilmington Community flowing 340 bbls. of clean 28.9-gravity oil per day from the Ford zone after deepening the hole to 5,690 feet.

Canal

Ohio Oil Co., in the Canal field, completed No. 9-3 Kern County Land in Section 14-30-25, flowing 2,650 bbls. of clean 35.3-gravity oil and 2,000,000 feet of natural gas per day from the Stevens zone with bottom of the hole at 8,340 feet. The well, which topped the pay at 8,072 feet and was finished with a 7-inch water string landed at 8,070 feet was brought in flowing through a 46/64-inch bean.

Wasco

Standard Oil Co. finished the second commercial producing well in the Wasco field which Continental Oil discovered April 13, 1938, when No. 1 Mushrush was completed flowing 6,528 bbls. of very clean 37.1-gravity oil and 1,000,000 feet of natural gas per day from the upper zone with bottom of the hole at 13,139 feet. The well was finished with 1,661 feet of 4½-inch liner landed at 13,138 feet. Standard's No. 8-1-B Kern County Land is being abandoned as dry at 13,716 feet. Continental Oil Co. plugged back No. 3-A Kern County Land from 13,644 feet to 13,197 feet but has not succeeded in obtaining commercial production. Standard No. 1 Mushrush, the second commercial producer in this field, was completed with a 7-inch water string landed at 11,279 feet and 2⅞-inch tubing in addition to the 4½-inch liner which was cemented through perforations at 13,075 feet.

San Joaquin Basin

In the Edison field of Kern County, Wood Callahan Oil Co. completed No. 21-3 Community flowing 220 bbls. of 18.1-gravity oil per day from 3,569 feet. The well was finished with an 8⅝-inch water string landed at 3,350 feet and 165 feet of 6⅝-inch perforated liner.

Richfield Oil Corp. has made a deal with Western Gulf Oil Co. whereby the former secures one-half of the latter's holdings in the Cantua area subject to a seismograph survey and starting of drilling operations. Western Gulf has drilled four dusters in this area but is reluctant to pull out as one of the wells showed enough to lend further encouragement.

Los Angeles Basin

In the Dominguez field, Union Oil Co. completed No. 64 Callender flowing 130 bbls. of 30.7-gravity oil cutting 5 per cent and 800,000 feet of gas per day from 5,630 feet. In the Richfield district, Signet Oil Co. has completed No. 2 Kraemer pumping 25 bbls. of 16.9-gravity oil cutting 25 per cent from 1,970 feet.

In the Huntington Beach field where Southwest Exploration Co. is drilling two wells into the state tidelands, the company is making preparations to increase the scope of work. Derrick sites are being graded for wells Nos. 3, 4, 5, and 6 all of which will be bottomed beneath the tidelands by means of directional drilling.

In the Lovelady pool in the Long Beach field, De Soto Oil Co. in its No. 1, bottomed at 9,917 feet, cemented a 7-inch water string at 9,740 feet. This is the deepest well drilled in the Long Beach field and in the interval at 9,750-9,907 feet the formation is about 50 per cent oil sand. The company is drilling out the cement and if a satisfactory water shut off has been effected will proceed with a production test.

In the Newhall field of Los Angeles County, Barnsdall Oil Co. has concluded drilling operations on No. 4 Ranch San Francisco in Section 26-4-17, at 6,467 feet and an early test is to be made. An 8⅝-inch water string has been landed at 6,337 feet with top of the solid oil sand being logged at 6,350 feet. Barnsdall Oil Co. discovered this field and up to the present is the only operator to secure commercial production on the structure.

Kansas Fields

(Continued from Page 75)

Shell Petroleum Corp. No. 2 Scroggins C, SE NW SW Section 14-32-2, was drilling below 135 feet. E. B. Shawver No. 2 Gaskill, NE NE SE Section 29-31-1w, was moving in material.

Greenwood County

Arthur Lyke No. 4 Morris, SW NE SW Section 5-24-12, Greenwood County, had pay at 1,768 feet, total depth 1,784 feet, and pumped 25 bbls of oil in 24 hours initially.

C. E. Ash and O. V. Paul No. 1-A Taylor, SE SE SW Section 6-27-12, was dry and abandoned at 2,179 feet, total depth.

Ward McGinnis recently completed No. 2 Dehlinger, NW SE SE Section 3-24-13, at 1,681 feet, total depth, for 10 bbls. of oil daily.

Joe Rosen and others No. 2-A Trapp, CN½ S½ NE Section 23-26-9, was bottomed at 2,190 feet and produced 25 bbls. of oil initially.

Butler County

Two wells recently were completed in Butler County, the largest producer being Adair & Martin No. 1 Ramp, SW NW SW Section 14-28-7. It pumped 80 bbls. of oil in 24 hours at 2,691 feet, total depth.

Cox, McGinnis and Saco Oil Co. No 2 Augustine, NE SE NE Section 1-25-3, was completed for 50 bbls. of oil daily at 2,685 feet, total depth.

Rex & Morris No. 1 Sutter, NE NE SE Section 7-28-7, was a location.

Other New Work

In Harvey County, Burnett & Wilhelm No. 2 Cunningham, C SE SE Section 19-23-3w, was rigging up rotary.

In Ellsworth County, Continental Oil Co. and others No. 1 Johnson, SE SE NW Section 28-17-8w, and same operators' No. 2 Buehler, CN½ N½ NE Section 33-17-8w, were cellars.

Rocky Mountain Fields

(Continued from Page 80)

35n-3w. T.D. 1,693 ft.; contact 1,681 ft.; shot 150 lbs. dynamite; increase oil flow; acid. 500 gals.

Yellowstone County

Signal O. & G. Co. No. 1 Stallinberger, NE NE SW Sec. 18-3n-23e. Cg. 5,056 ft.; no coml. oil in test at 4,955 ft.
Riverton Oil Co. No. 1 Fox, CEL NW NE Sec. 14-2n-23e. S.D. 1.978 ft. for 7-in.

UTAH

Grand County

The Cane Creek Oil Co. No. 2 Shaffer, important test on Cane Creek, landed 8¼-inch at 1,815 feet and drilled to 1,845 feet when water broke in behind the pipe. At that depth the bottom of the string was in salt and shale. At 1,835 feet a lime shell was encountered which will make a good seat and pipe is being lowered for a shut-off. This shell was found at 1,837 feet in the discovery well 200 feet away. In present test every effort is being made to overcome the water problem before drilling into the horizon at 2,025 feet and in attempt to solve the difficulty 5 tons of heavy clay were dumped into the hole. Efforts to shut off the water above the pay in the old Midwest Exploration Co. test after the hole had entered the oil and gas horizon continued for many weeks without success, but with the log of that well available, it is believed that the hole can be dried up before drilling in.

The Columbia Crude Oil Co. No. 1 Rath, NW SW SE Section 12-25s-20e, in the Seven-Mile Lake district, was plugged and abandoned at 4,253 feet. The objective was the sand in the Cane Creek well encountered at 2,025 feet. It started in the Rico and had the top of the Hermosa (upper Pennsylvanian) at 134 feet and the top of the Paradox at around 1,800 feet.

Cane Creek Oil Co. No. 1 Govt., NW SW Sec. 31-26n-21e. T.D. 1,845 ft.; U.R. 8¼-in. from 1,815 ft.
Crescent Eagle Oil Co. No. 1 Brendel, SW SE Sec. 4-22s-19e. Drlg. 4,110 ft.

Summit County

Longwell Pet. Co. No. 1, SE SW SE Sec. 35-3n-5e. T.D. 2,876 ft.; sdtrkg.

Southwest Texas District

By F. L. SINGLETON

Extend Pools and Find New Sands; But No New Fields

CORPUS CHRISTI, Tex., Nov. 21.—Extensions and new sand discoveries in proven fields and the testing of several important wildcats were the highlights of a comparatively quiet week of developments in the Southwest Texas district.

Chapman Minerals Corp. No. 1 Ablinger, in the Church area, Bee County, 4 miles southeast of Beeville in the John Ryan Survey, was drilling plug in the 5½-inch casing, cemented on bottom at 5,941 feet. This test cored approximately 3 feet of gas sand and casing was cemented as protection against a possible blowout from the highly charged gas-distillate sand which was logged in two previous tests. The well is located between two wells drilled a few years ago by George Church, one of which blew out. The other was a distillate producer.

In the same county, in the Tulsita gas field, Herbert Aid and others No. 3 Imogene Hall, 1,350 feet southwest of the discovery well, was abandoned after it tested salt water through perforated casing at 3,562-66 feet.

Transwestern Oil Co. extended the East Premont field 1½ miles southwest and opened a new producing horizon with the completion of No. 1 B. H. Dunlap. Casing was reperforated at 5,365-70 feet, and the well flowed 4 bbls. of fluid per hour of which 50 per cent was wash water and the balance distillate. Magnolia Petroleum Co. No. 10 Seeligson, 1,320 feet west of production, cemented off perforations at 5,807-12 feet where it showed distillate production and the hole has been plugged back to 5,600 feet and another test will be made.

Pure Oil Co. in No. 1 State, in Laguan Madre Bay, offshore from Kleberg County, was preparing to test after making a series of perforations. The hole is bottomed at 9,636 feet and a short string of casing was cemented on bottom. The hole was plugged back to 7,383 feet and the casing perforated with 40 shots at 7,269-78 feet, and with 30 shots at 7,248-56 feet. Additional perforations were being made at another interval before drill stem testing.

Hewitt and Dougherty No. 1 Rooke, 4,000 feet southwest of the La Rosa field, cored gas in the upper sand at 5,395-5,405 feet and on a seven-minute drill stem test showed 450 pounds of pressure. In view of the fact that this sand has been found at a uniform depth in all of the producing wells, the well is considered as having a good chance to produce in the discovery horizon at 5,900 feet. Offsetting Rutherford Oil Corp. No. 1 Schrimer, recently completed to open a new sand at 6,300 feet, Fred Shield is rigging up No. 1 Sasse.

Wildcat Logs Gas Sands

Stanolind Oil & Gas Co. No. 1 Clark, a wildcat northwest of Robstown in the Herrera Survey, continues to attract attention as additional gas sands are logged. Sand with a gas odor was cored at 5,030-35 feet and shaley sand showing gas at 5,035-40 feet. On a 10-minute drill stem test at 4,984-5,003 feet, the well tested 115 pounds of working pressure and 120 feet of oily drilling mud. A previous test at 4,884-91 feet tested 450 pounds of working pressure and 15 feet of drilling mud. On Mustang Island, Texas Co. No. 1 Little has been plugged back from 7,746 feet to 5,300 feet where the hole will be sidetracked. The progress of the well has been retarded by a stuck drill stem caused by an attempted blowout.

Steinberger Petroleum Corp. is pulling screen to clean out No. 1 Albrecht, a wildcat north of Goliad, in Goliad County, after the well failed to flow from perforated casing at 5,239-43 feet. While swabbing, the well showed a small amount of oil. Several sands up the hole showed slight saturation and if the present sand fails to produce, the other sands will be tested.

In the McAllen area, Hidalgo County, R. E. Hardin and others No. 1 Card, completed last week as a distillate producer, started building up pressure between the 7-inch production string and surface casing and the well had to be killed and the casing recemented. The casing was reperforated at 7,460-65 feet, and the well flowed 196 bbls. of distillate and 5,000,000 feet of gas through a three-eighths inch choke.

Sun Field Outpost

Circle Oil Co. No. 1 Olivarez, a half mile north of the Sun field, Starr County, has logged two more promising oil sands and is coring ahead for the Vicksburg formation expected at 5,200 feet. On a 15-minute drill stem test at 4,908-21 feet, 590 feet of fluid was recovered of which 90 feet was oil-cut mud and the balance pipe line oil. This is the third sand logged, as previous tests at 4,867-81 feet, and at 4,560-73 feet, showed favorable results. A half mile northwest of the discovery well, Sun Oil Co. No. 1 Olivarez, Section 239, plugged back from a total depth of 5,709 feet and is being completed through perforated casing at 4,905-10 feet.

In the Kelsey field, Jim Hogg County, Humble Oil & Refining Co. No. 3 Bass, 3,732 feet due north of the discovery well, is shut down awaiting orders, after a drill stem test at 4,770-82 feet tested 1,050 feet of salt water and 250 feet of mud, with a good gas blow. Casing is expected to be cemented for completion as a drill stem test in the discovery horizon at 4,700-36 feet, showed 500 feet of oil.

W. H. Spice No. 1 Edrington, the discovery well of the Campani field, McMullen County, completed October 2 for an initial production of 5 bbls. of oil per day through a quarter-inch choke, has been recompleted for an initial production of 2½ bbls. of oil per hour flowing through an eighth-inch choke with tubing pressure 180 pounds and casing pressure 350 pounds.

Edwards Lime Prospect

A new Edwards lime pool for Frio County was indicated by the showing of Humble Oil & Refining Co. No. 1 Houston, Section 162, M. Rips Survey. The Edwards lime was topped at 5,218½ feet, with saturation cored at 5,218½-22 feet where a drill stem test showed 90 feet of oil and mud, and 180 feet of salt water and 40 pounds of pressure. The second test was made at 5,218½-26 feet and showed 130 feet of oil and mud, 90 feet of salt water and 40 pounds of pressure. The hole was cored to 5,228 feet and a drill stem test is reported to have shown 520 feet of fluid, 150 feet of which was 35-gravity oil, and a small amount of salt water. This well is located north of the company's No. 1 Schley, the discovery well of the Schattel field, which was completed in the Austin chalk at 4,800 feet as a small pumper.

In Bastrop County, Continental Oil Co. has taken over Paul Teas and others No. 1 Grizzard, an Edwards lime test and is plugging back for another test at 7,023-30 feet.

SOUTHWEST TEXAS COMPLETIONS

(24-hour production)

Bexar County

Von Ormy field: B. Soltner No. 3 fee, sand 691-702 feet, 3 bbls. pumping.

Duval County

Benavides field: Hiawatha Oil & Gas Co. No. 18 Parr, perforated casing 5,433-44 feet, 82 bbls., 5/32-inch choke. Eagle Hill field: Magnolia Petroleum Co. No. 8 Duval County Ranch Co., 2,431 feet, abandoned. Fitzsimmons field: Frank Fronhoeffer No. 2 Fitzsimmons, perforated casing 4,343-48 feet, 147 bbls., 5/32-inch choke. Hoffman field: Cox, Hamon and others No. 3 Hoffman-Conway, 2,905 feet, 75 bbls., jetting. Cox, Hamon and others No. 10 Cuellar, sand 2,792-2,804 feet, 65 bbls., jetting. Cox, Hamon and others No. 47 Cuellar, 2,592 feet, 115 bbls., jetting. Ranch Solo field: Stewart and Nye No. 1-A Peters, perforated casing 1,866-71 feet, 75 bbls., pumping.

Caldwell County

Dale field: Ralph Odgen No. 6-B Lackey, 2,720 feet, 65 bbls. pumping. Salt Flat field: Martel Petroleum Co. No. 2-A Gray, 2,686½ feet, 43 bbls. fluid, 5 per cent sulfur water, pumping.

Calhoun County

Heyser field: Gulf Oil Corp. No. 9-B Traylor, perforated casing 5,466-72 feet, 197 bbls., eighth-inch choke. Magnolia Petroleum Co. No. 10 Lander, sand 6,033½-36 feet, 130 bbls., 7/64-inch choke.

Hidalgo County

Samfordyce field: A. T. Groboski No. 1-C Guerra, 2,856 feet, gas well.

Jim Wells County

Banderia field: Magnolia Petroleum Co. No. 1 Romana V. De Garcia, perforated casing 6,422-28 feet, 5,865,000 feet gas, three-eighths inch choke. South Alice field: Texas Gulf Producing Co. No. 2 Smith and Gardner, perforated casing 5,210-18 feet, 109 bbls., 15 hours, three-sixteenths inch choke.

Nueces County

Clara Driscoll field: Conservative Oil Co. No. 5 Flynn, 5,505 feet, 40 bbls., three-sixteenths inch choke. Stratton field: Corpus Christi Corp. No. 6 Wardner, 6,431 feet, 100 bbls. distillate, three-sixteenths inch choke.

Refugio County

La Rosa field: G. S. I. and others No. 1 Yarrow, perforated casing 5,903-06½ feet, 186 bbls., eighth-inch choke. Tomoconnor field: Copano Oil Co. No. 35-B O'Connor, sand 5,815-29 feet, 606 bbls., quarter-inch choke. Copano Oil Co. No. 36-B O'Connor, sand 5,812-24 feet, 605 bbls., quarter-inch choke.

San Patricio County

East White Point field: Plymouth Oil Co. No. 3-D Cole, perforated casing 5,638-45 feet, 128 bbls., 7/64-inch choke. Plymouth field: Pantex Petroleum Co. No. 6 State, perforated casing 5,611-14½ feet, 152 bbls., 9/64-inch choke.

Starr County

Sun field: Sun Oil Co. No. 1 Speer, 6,131 feet, abandoned.

Victoria County

East Placedo field: Stanolind Oil & Gas Co. No. 2 Warnken, sand 6,377-82 feet, 85 bbls., 12 hours, quarter-inch choke. McFaddin field: Transwestern Oil Co. No. 6-E McFaddin, sand 4,390-4,403½ feet, 103 bbls., eighth-inch choke.

Zapata County

Comitas field: Gilcrease Oil Co. No. 38-B Haynes, sand 1,097-1,105 feet, 40 bbls., pumping. Escobas field: Dulup Oil Co. No. 39 Trevino, 1,207 feet, 15 bbls., pumping. Texas Co. No. 123 Measles, sand 1,289-96 feet, 50 bbls., pumping. Mirando Valley field: Shield Oil Co. No. 1 Martinez, sand 1,833-38 feet, 70 bbls., pumping.

North and East Texas

By
D. H. STORMONT

Four Oil Sands Penetrated in Outpost in the Canyon Area

WICHITA FALLS, Tex., Nov. 21.—The principal North Texas interest and a good portion of its activity was centered for another week in the Canyon sand pool of southern Wichita and northern Archer counties.

Two weeks ago the pool was extended south into Archer County and now the west offset test to this extension well is indicating a producer as four oil sands have been found. The test is the N. H. Martin & Sons No. 1 Stehlik, northeast corner of Section 6, Block 3, Denton County School Lands. The outpost found Canyon sand, the pool's producing formation from 2,611-23 feet, and cemented casing at 2,610 feet. An electrical survey was run to correlate the upper sands found while drilling and it indicated oil sand from 807-10 feet, from 1,817-27 feet, and from 1,830-35 feet.

Shappell Oil Co. No. 3-D Jackson, the well that extended the pay into Archer County, was completed for 48 bbls. of oil per day. A new producer for this Archer County extension area was indicated in the Shappell Oil Co. No. 50-A Jackson, Block 23, League 3, Denton County School Lands, when oil sand was drilled from 2,610-20 feet. The well flowed by heads and the operator was running tubing for completion. This is the pool's eighth producer with no dry holes yet registered.

The Hull-Silk area of northern Archer County centered considerable attention as another well was completed in the 3,800-foot level and an extension was indicated for the 4,200-foot level.

Reno Oil Co. No. 1-D L. F. Wilson, Block 24, A.T.N.C.L. Survey, in the 3,800-foot southwest extension area, was completed for 168 bbls. of oil per day in pay at 3,758-92 feet. Extension of the 4,200-foot area of the pool about 1½ miles to the northwest was indicated by Thurman Oil Co. No. 1 L. F. Wilson, E. Hall Survey, Abstract 682. This outpost which is approximately 1,000 feet west of two wells producing from the 3,800-foot level, topped the middle pay at 4,236 feet. An electrical survey of the hole revealed saturated lime from 3,958 feet to 4,002 feet, however, it was not believed sufficient to make a commercial producer. Casing has been cemented at 4,235 feet and the test is bailing preparatory to drilling plug.

Marble Falls Test

Second deep test for the Marble Falls oil pool opened a few months ago about 3 miles south of Wichita Falls, has been made by the discoverers of the area. Continental Oil Co. and Petroleum Producers Co. staked their No. 1 Albert Finkler as a south offset to the discovery well, which is now pumping about 60 bbls. of oil per day from the Marble Falls formation at 5,129-5,375 feet.

Baylor County has a new wildcat location, made by British American Oil Producing Co. No. 1 F. C. Green, a 5,500-foot test to the Ellenburger of lower Ordovician. Location is in Section 215, T.&N.O. Survey, about 9 miles east of Seymour.

NORTH TEXAS COMPLETIONS

(24-hour production)

Archer County

King & McCurdy No. 1 T. Sikard, 1,168 feet, dry. M.L. Drilling Co. No. 2 H. O. Prideaux, 689 feet, dry; No. 3 H. O. Prideaux, 696 feet, dry. W. B. Omohundro No. 5 Charles H. Thuman, 978-1,000 feet, 70 bbls. C. H. Staley and others No. 7 Mrs. Anna Mangold, 3,773-3,850 feet, 770 bbls.

Cooke County

Hudspeth and others No. 2 Mrs. O. Wilson, 1,250 feet, dry. Texas Co. No. 5 M. Kessler, 1,350-54 feet, 15 bbls.; No. 16 Tony Trubenbach, 749-76 feet, 60 bbls.

Baylor County

J. F. Morrisey No. 1 John White, 510 feet, dry. H. F. Wilcox Oil & Gas Co. No. 1 J. E. Fritz, 5,277 feet, dry.

Foard County

Texas Co. No. 17 L. K. Johnson, 3,807 feet, dry.

Jack County

Nelson Oil Syndicate No. 6 J. P. Eatherly, 2,760-2,815 feet, 375 bbls.; No. 7 J. P. Eatherly, 2,760-2,812 feet, 403 bbls. C. B. Pruitt No. 7 M. Covington, abandoned location. Jesse Martin No. 1 J. M. Bloodworth, 340 feet, dry.

Knox County

Roeser & Pendleton and I.T.I.O. No. 1 G. H. Beavers, 4,690 feet, junked.

Wichita County

Blackwell Oil & Gas Co. No. 8-D Hodges, 3,787-88 feet, 480 bbls. Carey & Carey No. 2 J. A. Kemp, 785 feet, dry. Continental Oil Co. No. 4-B Waggoner Brothers, 3,747-85 feet, key well. Dorian & Jackson No. 2 L. C. Denny, 3,860-3,930 feet, 695 bbls. E.C. Oil Co. No. 7 George F. Lebus and others, 3,721-3,830 feet, 600 bbls. Fain McGaha No. 2 E. P. Griffin A, 3,784-3,840 feet, 984 bbls. George Proctor No. 35 Ed Foster A, abandoned location.

Young County

Cable Oil Co. No. 6 J. Williams, 571-76 feet, 51 bbls. Holbrook & Wood No. 12 R. L. Watson B, 614 feet, dry. Pemeta Oil Co. No. 6 Robinson B, abandoned location. Tebay & Leberman No. 5 W. C. Leberman, 986-89 feet, 10 bbls. Christie Brothers No. 1 Martin, 4,715 feet, dry. Dean Brothers and others No. 1 P. W. King, 3,721-35 feet, 2,400 bbls.

EASTERN TEXAS

DALLAS, Tex., Nov. 21.—An increase in activity in the Flag Lake pool, a half-mile extension to the Navarro Crossing pool of Houston County, and scattered wildcat activity throughout the counties featured the week's developments in the East Texas area.

The Flag Lake pool of northwestern Henderson County was given an increase in activity when two new tests were staked in the pool. The Texas Co. was reported moving in material for No. 2 I. A. Nolan, in the Nathan Parsons Survey, in the southwest extension area of the pool. The company was reported to have completed the re-work job on No. 1 Nolan, to the south, after drilling into water sand, and was preparing to place the well on the pump. Richards & Holloway have staked location for No. 1-B J. P. Tarkington, in the William K. Newell Survey. It is a north offset to their No. 1 Tarkington.

Extending the Navarro Crossing pool of Houston County about a half mile to the south, Humble Oil & Refining Co. completed No. 1 Hy Dailey, in the Jessie G. Thompson Survey, for 138 bbls. of 35-gravity oil in 24 hours. Pressures were recorded at 2,310 pounds on the casing and 1,580 pounds on the tubing. The gas-oil ratio is 1,785 to 1.

The third test in the Opelika area of Henderson County, being drilled by the discoverers of the area, Humble Oil & Refining Co., Tide Water Associated Oil Co. and Seaboard Oil Corp., is drilling below 4,100 feet. The well topped the Pecan Gap at 2,824 feet and the Austin chalk at 3,740 feet.

Leon County's new oil discovery, J. K. Hughes, Tucker and others No. 1 Bain, 8 miles east of Buffalo, has declined to a production of 130 bbls. of fluid, 70 bbls. of water and 60 bbls. of oil. The well is flowing through a 10/64-inch choke under 2,100 pounds of casing pressure and 950 pounds of tubing pressure.

In Grayson County, after a shutdown of several weeks, McMurrey No. 1 Long, wildcat about 2 miles southwest of the Collinsville field, is drilling ahead toward the 3,800-foot pay at 3,221 feet.

W. S. McGee No. 1 Prichett, Kaufman County wildcat in the J. Hendricks Survey about 7 miles west of Mabank, looms as a possible failure when hole filled with water after plug was drilled from casing set at 3,100 feet. The test is reported to have found some saturation in the Woodbine sand.

In Freestone County, hopes for production in the Evans Lake area in the eastern part of the county and 15 miles east of Fairfield, were dimmed when Collins & Stewart No. 1 F. E. Hill recovered 2 feet of gray salt water sand on a core just above 5,152 feet. The test was reported shut down for orders.

EAST CENTRAL TEXAS COMPLETIONS

(24-hour production)

Anderson County

Tide Water-Seaboard No. 8 W. H. C. Goode, 3,950-93 feet, 85,000,000 feet of gas.

Franklin County

Humble Oil & Refining Co. No. 4 Humble-Penn, 4,268-73 feet, 423 bbls.

Freestone County

J. L. Collins & Co. No. 5 E. P. Harwell, abandoned location; No. 8 E. P. Harwell, 4,013-29 feet, 203 bbls.

Houston County

Humble Oil & Refining Co. No. 1-B H. Dailey, 5,872-90 feet, 138 bbls.

Navarro County

Wilson No. 1 Healer, dry and abandoned at 3,049 feet.

EAST TEXAS FIELD COMPLETIONS

(One-hour production)

Gregg County—Longview Area

Atlantic Refining Co. No. 9 J. J. Repond, 3,680-3,750 feet, 92 bbls. Gulf Oil Corp. No. 33 S. C. Fishburn, 3,503-13 feet, 48 bbls. Humble Oil & Refining Co. No. 32 T. B. and T. D., 3,474-94 feet, 40 bbls. Magnolia Petroleum Co. No. 19 H. L. Foster, 3,595-3,608 feet, 80 bbls. Shell Petroleum Corp. No. 31 W. T. Burnside, 3,484-3,601 feet, 70 bbls.; No. 32 W. T. Burnside, 3,488-3,603 feet, 64 bbls.; No. 20 S. C. Fishburn, 3,488-3,601 feet, 54 bbls. Elliott-Walsh Oil No. 3 Carter, 3,594-3,601 feet, 38 bbls.

Gregg County—Kilgore Area

C. V. Landsberry No. 22 A. Money, 3,580-81 feet, 75 bbls. Texas Co. No. 24 S. D. Walker, 3,599-3,600 feet, 8 bbls. Weaver-Crim No. 3 Crim-Reynolds, 3,540-59 feet, 30 bbls.

Rusk County—Kilgore Area

Selby-Lewis No. 12 L. C. Peguis, 3,567-80 feet, 30 bbls.

Rusk County—Joiner Area

Mid-States Oil No. 6 C. Young, 3,676-3,709 feet, 90 bbls. Humble Oil & Refining Co. No. 26 W. A. Mulliken, 3,600-64 feet, 50 bbls. Ward Oil Co. No. 46 E. S. Thrash, 3,768-98 feet, 37 bbls.

Upshur County

Stanolind Oil & Gas Co.-Falcon No. 7-B F. Williams, 3,669-72 feet, 43 bbls.

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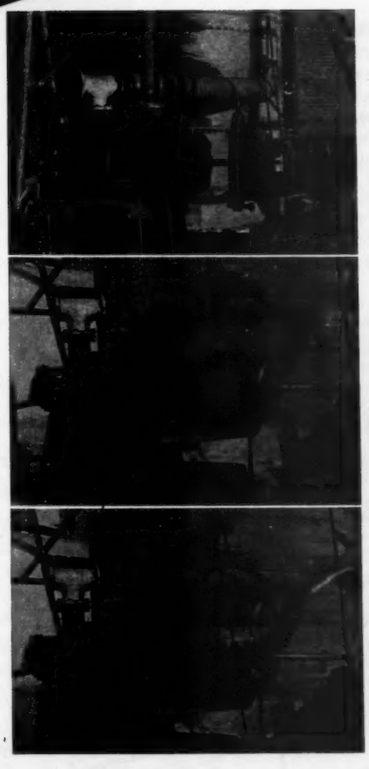

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CENTRIFUGAL PUMPS FOR EVERY SERVICE

Texas and Louisiana Gulf

By
NEIL WILLIAMS

Terrebonne Parish Has New Pool in the 10,000-Foot Zone

HOUSTON, Tex., Nov. 21.—The opening of commercial production on the South Houma prospect, Terrebonne Parish, Louisiana, and the apparent discovery of a new producing area in Jefferson County along the Texas Coast, were the outstanding developments in the Gulf Coast district the past week.

Shell Petroleum Corp. No. 1 Peters, Section 73-18s-18e, South Houma prospect, Terrebonne Parish, provided southeastern Louisiana with another deep seated field when it was completed for an initial production of 450 bbls. of pipe line oil per day through an 16/64-inch choke. Tubing pressure was 3,295 pounds and casing pressure 3,750 pounds. This well was drilled to a total depth of 11,047 feet, and production was obtained from the Miocene sand through perforated casing at 10,300-05 feet. The field is located approximately 12 miles southeast of the town of Houma and about 6 miles northwest of the Lirette field. The structure was found by reflection shooting in 1937 and was checked with various types of instruments. Protection acreage is held by Gulf Oil Corp., Humble Oil & Refining Co., Fohs Oil Co. and Barnsdall Oil Co.

Record Casing String

The first production test in Texas Co. No. 2 State, the second well drilled in the Bateman Lake field, St. Mary Parish, showed salt water. The well was tested through perforated casing at 10,937-48 feet, and another test is scheduled to be made at 10,911 feet, the discovery horizon. In the same parish and located in the Horseshoe Bayou field, Texas Co. successfully cemented what is said to be the longest string of 9⅝-inch casing in the world when 11,631 feet of pipe was landed in No. 2 State. The hole is bottomed at 11,644 feet and the size of the casing indicates the company intends to drill much deeper.

New sand discoveries were opened in the Venice field, Plaquemines Parish, and at Raceland, La Fourche Parish, by Tide Water Associated Oil Co. The company's No. 2 Buras Levee Board, a twin well to No. 1 Buras Levee Board, flowed 25 bbls. of 40.5-gravity oil per hour from perforated casing at 3,547-85 feet. The well is flowing through a quarter-inch choke under a tubing pressure of 400 pounds. The completion of the well provides the field with three producing zones at 3,500, 3,600 feet and at 7,100 feet. In the Raceland field, No. 1-A South Coast Corp., Section 34-15s-19e, flowed 125 bbls. of 33.5-gravity oil through a one-eighth inch choke under a tubing pressure of 550 pounds and casing pressure 850 pounds. This well was drilled to a total depth of 10,267 feet and was completed through perforated casing at 7,174-90 feet. The discovery horizon was below 10,183 feet.

Lake Long's New Sand

In the Lake Long field, La Fourche Parish, Fohs Oil Co. No. 6 State-Lake Long, Township 17s-19e, was cleaning out showing pipe line oil to open a new sand for the field. Bottomed at 9,482 feet with 7-inch casing cemented at 9,481 feet, the well is flowing through perforated casing at 9,340-60 feet, making an estimated 2,000,000 feet of gas through a one-eighth inch choke under a tubing pressure of 2,950 pounds and casing pressure of 900 pounds.

Location for an interesting wildcat was announced by the Texas Co. for No. 1 Louisiana Land & Exploration Co. in Bastian Bay. The well is 3,442 feet north and 1,059 feet east of the southwest corner of Section 43-20s-28e. In St. Martin Parish, Shell Petroleum Corp. No. 1 Hazel Burdin, a wildcat in Section 15-14s-12e, recovered seven stands of salt water on a drill stem test at 9,514-40 feet and is coring ahead in shale below 9,594 feet.

On the Texas Side

Along the Texas Coast, Humble Oil & Refining Co. was running 7-inch casing in No. 1 M. C. Todd, a wildcat located in the Cheek area, Jefferson County which showed for a pool opener on a drill stem test. The hole is bottomed at 7,719 feet and the casing is expected to be cemented on bottom following a 10-minute drill stem test at 7,715-19 feet which tested 1,800 feet of 35-gravity oil and 105 pounds of working pressure. Sand was cored at 7,716-19 feet. The well is located in the William Carr Survey about a mile northwest of the Cheek field where two wells have been completed at approximately the same depth as the Humble test which is bottomed in the lower Frio formation. Development in the Cheek field has been disappointing. The discovery well, Glenn McCarthy No. 1 Broussard, flowed pipe line oil and a large percentage of salt water, while Shell Petroleum Corp. No. 1 Pleasant was recently completed as a distillate producer. The showing of the Humble test indicates that the two completed wells may be on the south edge of the structure and that the main part of the field lies to the north and northwest.

On the Iowa Colony prospect, Brazoria County, Humble Oil & Refining Co. No. 1 Tuttle, H.T.&B. Survey No. 67 is being watched with much interest as it cores in shale below 6,000 feet. The Discorbis was topped at 5,210 feet, Heterostegina at 5,575 feet and the Marginulina at 5,785 feet. On these markers, the well is running higher than Normandie Oil Co. No. 1 Ramsey, a dry hole about a mile to the northwest.

League City Field

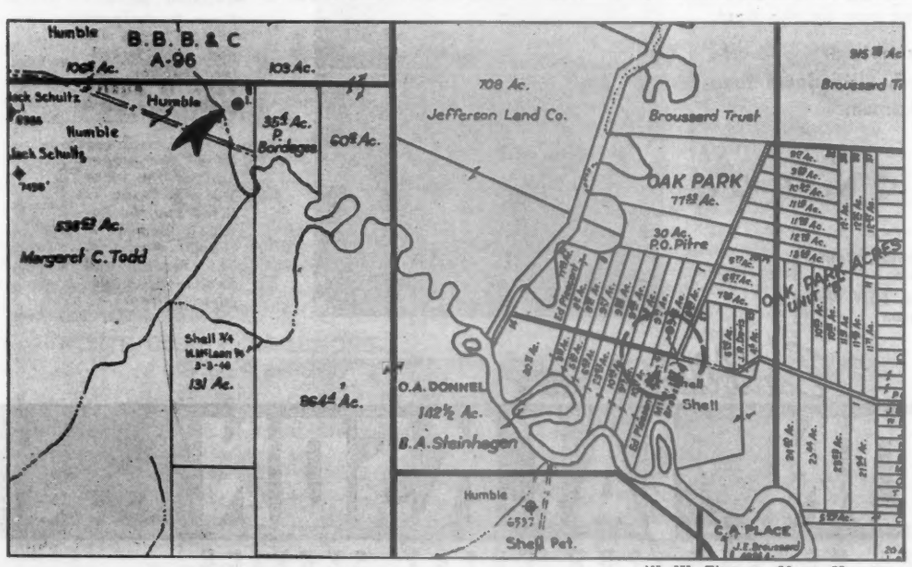
In the newly opened League City field, Galveston County, H. C. Cockburn No. 1 Haardt, 2 miles north of the discovery well is coring shale below 8,085 feet. The Miocene Discorbis was topped at 6,319 feet, Discorbis at 6,527 feet, Heterostegina at 6,834 feet, Round Marginulina at 6,954 feet, Flat Marginulina at 7,026 feet, Marginulina at 7,259 feet, and the Frio at 7,669 feet. Compared to the Frio marker in the discovery well at 8,149 feet, the well is checking approximately 280 feet higher, which indicates that a field of major importance has been found.

Housh & Thompson No. 1 Clary, a wildcat northwest of the Conroe field, Montgomery County, was turned into the tanks Monday morning and is flowing 7½ bbls. of fluid per hour through 11/64-inch choke, 25 per cent of which is pipe line oil and the balance salt water. Tubing pressure was 1,600 pounds and casing pressure 1,740 pounds. The well is producing from the lower Cockfield sand bottomed at 4,739 feet. Seven-inch casing was cemented at 4,736 feet.

Another wildcat which has attracted much attention is Jack Frazier and others No. 1 Griffith, Adam Smith Survey, in the Mount Houston area, Harris County. While coming out of the hole with a core at 7,760 feet, the well attempted to blow out. The Cockfield was topped at 7,620 feet, and sand was logged at 7,725-40 feet and at 7,755-60 feet. The operators are coring ahead in shale below 7,825 feet and the Conroe sand should be found within a few days.

One mile south of the Turtle Bay field in Turtle Bay, Stanolind Oil & Gas Co. No. 1-38 State is drilling in sandy shale and lime below 7,556 feet. The Discorbis was topped at 5,872 feet, Heterostegina at 6,202 feet, Round Marginulina at 6,382 feet and Flat Marginulina at 6,472 feet.

In the North Markham field, Matagorda County, Ohio Oil Co. No. 1 Carlson and others, a north offset to the discovery well in Block 9, I.&G.N. Survey No. 2, is bottomed at 8,430 feet, with 7-inch casing cemented on bottom. The well is expected to be tested in the discovery horizon at approximately 7,700 feet where a drill stem test showed several hundred feet of oil and some salt water.



W. W. Zingery, Maps, Houston

Humble Oil & Refining Co. No. 1 Todd, 1½ miles northwest of the Cheek field, Jefferson County which is preparing to test after making a favorable drill stem test

TEXAS GULF COAST COMPLETIONS

(24-hour production)

Brazoria County

Hastings field: Humble Oil & Refining Co. No. 12 W. H. Schindler, sand 6,062-72 feet, 565 bbls., quarter-inch choke. Stanolind Oil & Gas Co. No. 2-B Resoft, 6,080 feet, 593 bbls., quarter-inch choke; No. 5 Roberts,

(Continued on Page 94)

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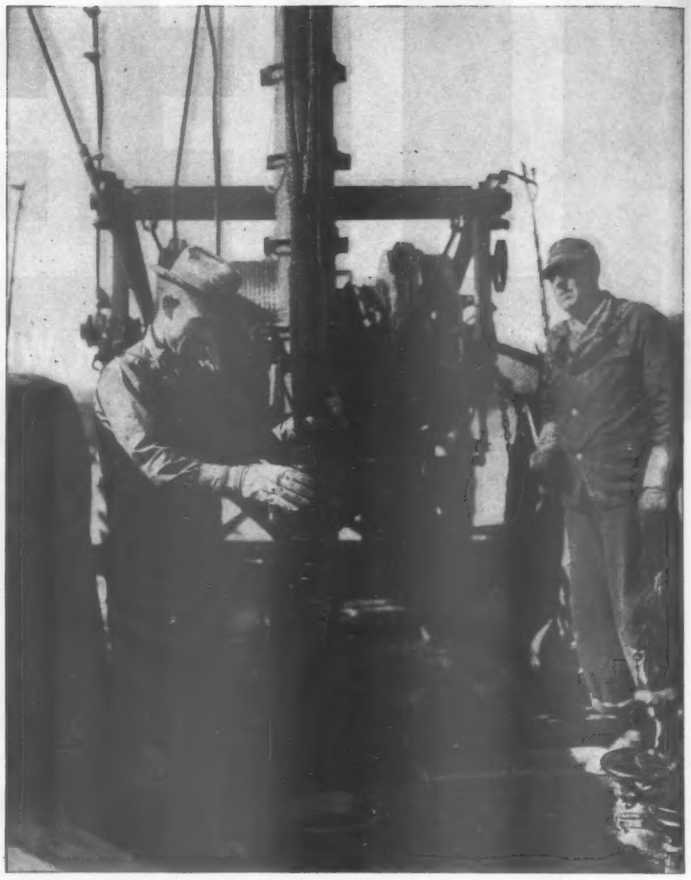
Cup Assembly is Removed with maximum speed and ease, by merely unscrewing the retaining nut at bottom of swab. Many operators, instead of using wrench at top of swab, simply insert a bar in the fluid by-pass openings in mandrel, as here shown.



Ready to Run In, on well shown at left, with 4" Guiberson Type "K" Swab. Jim Sloan, right, is a driller of long experience in West Virginia, Oklahoma, and Illinois, where this picture was taken, near Centralia. At left is Fred Rice, tooldresser.

Guiberson Type "K" Tubing Swabs promote good humor because they are trouble-proof. In center of photograph is Bob Garden of R. E. Garden & Son. Well is in Rice County, Kansas. The Guiberson Corporation will pay $5 to the first person who sends in the correct names of the two unidentified men in this photograph.

"A FULL LOAD EVERY TRIP—AND TROUBLE PROOF," SAYS JIM SLOAN

JIM SLOAN—driller for a major oil company, in the Illinois Field—has been using and choosing Guiberson Swabs for many years. He tells us that he prefers the Guiberson Swab because, (1) it raises a full load, the flexible cups expanding and contracting to make up for reasonable variations in casing diameter; (2) because he finds it trouble-proof, as its flexible cups never stick going in, or hang coming out, and it runs in at maximum speed; (3) because Guiberson, since they first brought out the swab, have continued to improve it. "The Type K is the best swab I've ever used," says Sloan.

Bob Garden, shown at left (center) with a Guiberson Type "K" Tubing Swab, is another chooser and user of Guiberson Swabs.

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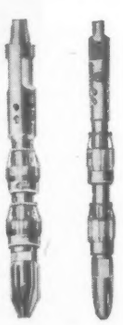
For complete information see Composite Catalog, pages 790 to 793. The Guiberson Corporation, 1000 Forest Ave., Dallas, Texas. Export: I. Frank Brown, 30 Rockefeller Plaza, New York. California: W. R. Guiberson Co., 723 E. Gage Ave., Los Angeles.



Type "K" Casing and Tubing Swabs —Patented

Eastern Field Report

By STAFF CORRESPONDENT

Deep Gas Tests Nearing the Critical Stage in Two States

PITTSBURGH, Pa., Nov. 21.—Interesting developments were reported from deep tests drilling in West Virginia and Pennsylvania. In Jackson County, W. Va., Everett Starcher and others topped the Oriskany sand in the wildcat on the Story Boggess farm in Ripley district and 7 feet in that formation there was a volume of gas gauging 400,000 feet a day.

The test is about 3¼ miles north of the corner of Jackson County as it juts into Kanawha County and is over 2 miles north of the gas well on the Cunningham farm. In the new test, the Corniferous lime was topped at 4,873 feet; the Oriskany sand 5,016 feet, with the gas showing at 5,023 feet. It is being deepened. The elevation of the new test is 724 feet, which places the Oriskany sand at subsea minus 4,292 feet compared with the Cunningham well elevation 653 feet, Oriskany 4,928 feet or subsea minus 4,275 feet. If there is a continuous structure from the great Kanawha Poca-Elk Oriskany gas field, this adds an additional mileage north with corresponding extensions east and west. The structural dip to the Oriskany appears only 17 feet in the last 2 miles, with some thickening of the Corniferous lime.

In Pennsylvania, although void of production, the deep test of the Carnegie Natural Gas Co. on the A. S. McCullough farm in Jefferson Township, Mercer County, adds additional data of geologic importance. It is located on the Shenango Quadrangle 41 degrees 15 minutes, 26 seconds latitude, and 80 degrees 20 minutes 54 seconds longitude. It is 1.15 miles south 71 degrees east of McCullough school.

In this test the Onondaga was topped at 3,604 feet at the base of which there was a salt bed at 3,765-68 feet with pure Oriskany sand at 3,770 feet, which extended to 3,801 feet. Water intruded in the Oriskany sand which rose several hundred feet in the hole. The water may be cased off and the hole drilled somewhat deeper. Here the Newburg would be about 1,200 feet deeper and the Clinton about 1,800 feet.

On Chestnut Ridge in Fayette County, Pa., two interesting depths were reached. In the test of the Peoples Natural Gas Co., on the Piedmont Coal Co. land, South Union, which has been drilled with a rotary, the Onondaga was topped at 6,515 feet and the chert at 6,540 feet and then deepened to 6,546 feet where 7-inch casing was run and cemented in and shut down for the cement to harden.

To the chert, this test appears 99 feet higher on structure than the discovery well, Heyn (Summit Hotel) No. 1, and 47 feet higher than the No. 2. The elevation of the new test is 2,357 feet. As the new test is being drilled with a rotary, it will be possible to explore to a greater depth than with the standard cable tools which were used in the first two tests on this structure and it is very possible that the Onondaga will be drilled through to the underlying Oriskany and cores to determine the gas source will be made. Drilling will be resumed this week.

The test of the L. J. Houze Convex Glass Co. on the Paul Dunham farm in Springhill Township, Fayette County, and about 1.1 miles north of the state line on Chestnut Ridge, is drilling at 7,610 feet. It has proven an enigma and there is a great thickening of intervals on the west flank of the ridge. The Onondaga was finally topped at 7,519 feet and the chert at 7,536 feet with no showing of gas and also, of more present importance, no signs of any edgewater conditions. The surface elevation is 2,202 feet and the Onondaga subsea minus 5,317 feet or over 1,000 feet lower than the discovery well over 9 miles northeast. An east flank well, that of the Greensboro Gas Co. on the J. R. Thompson farm, just north of Route 40 in Wharton Township, placed the Onondaga at subsea minus 4,783 feet.

On this ridge in South Union Township, the New Penn Development Co., William E. Snee and others are drilling at 4,900 feet in the test on the Indian Creek Coal Co., William Johnson warrant. North of Route 40, in North Union Township, the test of Wasson & Co. on the J. H. Sorg farm reached a depth of 6,640 feet. Work here has been slow due to almost continuous cementing.

During the week in the lower eastern fields, 16 operations were completed of which four were dry holes, five gas wells, and seven producers with a daily initial of 122 bbls. a day, most of which was in Southeast Ohio.

SOUTHEAST OHIO

The best producer for the week was a test in Lorain County, completed by R. E. Cain on the W. W. Rockwood farm in Section 1, Lagrange Township. It was drilled in the Clinton sand, total depth 2,253 feet, and produced 100 bbls. the first day after shot.

In Athens County Gross & McCune completed a second test on the Pearl and Nettie Sapp farm at Pratts Fork, Section 13, Lodi Township, in the Mitchell sand at 435 feet. It produced without shot 3 bbls. the first 24 hours.

In Licking County, George H. Long Account No. 8 completed No. 4 on the D. O. and Lula Layman farm, Section 10, Mary Ann Township, in the Berea sand at 807 feet. It is showing for 3 bbls. a day. In Section 9 of this township, F. H. Ward and others completed a test on the W. A. Connor farm in the Berea sand at 767 feet and it is good for a 2-bbl. pumper.

In Medina County, E. R. Edson & Son Co. completed No. 31 on the Daniel Ross farm, Tract 13, Lot 7, Chatham Township, in the Berea grit at 411 feet. It produced 3 bbls. the first day after shot.

In Perry County, C. Z. Ruth completed No. 22 on the William Nuzum farm in the SE quarter Section 28, Monroe Township, in the Berea sand at 1,013 feet. It produced 5 bbls. the first day after shot.

In Harrison County the Columbian Carbon Co. has started work on the deep test on the George D. Miller farm about one-quarter mile northwest of Cadiz Junction, Section 23, German Township. It will test the Oriskany sand.

SOUTHWEST PENNSYLVANIA

No production was added to Southwest Pennsylvania during the week. In Allegheny County, the Hope Construction & Refining Co. deepened No. 2 Henry Vetter in Penn Township to 2,350 feet and it was dry. The Fifth sand was topped at 2,282 feet.

In Washington County, J. J. Foley & Co. are drilling at 1,100 feet in the test on the Ira Baldwin farm in South Franklin Township. The Little Dunkard sand was at 840-930 feet with a show of gas at 895 feet and of oil at 900-920 feet; the Big Dunkard sand was at 940 feet with 83,000 feet of gas at 950-968 and 1,030 feet.

In Hopewell Township, Washington County, Charles M. McFadden is rigging up a test on the J. W. Reed farm. In North Fayette Township, the Young Brothers Oil Co. is building a rig for a test on the James Sturgeon farm. In Hanover Township, Kenneth, Aten & Co. are drilling a test on the A. Vance farm which has reached 635 feet.

In North Strabane Township, the Keystone Drilling Co. has rigged up a test on the Frank Grego farm. In South Strabane Township, A. V. Lewis and others are down 160 feet in No. 13 J. Frank Wilson farm. In Chartiers Township, the Cannonsburg Iron & Steel Co. has reached 1,380 feet in a second test on their own property.

Greene County

In Center Township, Greene County, the Carnegie Natural Gas Co. has reached 400 feet in No. 3 on the J. H. Orndoff farm. J. B. Orndoff is fishing in the No. 2 G. M. Scott and has not started No. 3 Mattie I. Scott.

In Washington Township, the Equitable Gas Co. has reached 817 feet in the No. 3 T. J. Huffman and 2,525 feet deepening the No. 1 T. J. Ross. In Greene Township this company is drilling at 508 feet on the George W. Hixenbaugh test.

In Monongahela Township, O. I. Dille is down 1,220 feet in a test on the Elmer D. Beckham farm. The Monongahela Oil & Gas Co. has reached 1,490 feet in a second test on the Vance heirs farm.

In Aleppo Township, the Manufacturers Light & Heat Co. is starting at 2,432 feet to deepen No. 1 C. J. Behm. Brummage & Brummage are building the rig for the test on the S. G. Durr farm in Monongahela Township. In Morris Township, Furman Nuss is shut down testing Big Injun gas in the test on the C. W. Ewing farm.

On Bissetts Run in Springhill Township, H. E. Milliken cleaned out and shot his No. 1 on the Morris Pethtel farm, a former Fifth sand gas well, and it is now producing about 2½ bbls. a day from that formation.

WEST VIRGINIA

One producer was completed in West Virginia during the week. In Wayne County, Huffman & York completed a test on the Murty Darr farm in Butler district at 1,975 feet. The Big lime was at 1,160-1,320 feet, Big Injun, 1,340-1,500 feet; Berea, 1,966-75 feet, and about 6 bbls. a day after shot from that formation.

In Calhoun County, Ivy Gainer and others completed a test on the L. J. Morris farm in Sherman district in the Injun sand at 2,205 feet as a gas well gauging 750,000 feet a day.

In Doddridge County Dr. James Prunty and others drilled a test on the L. R. Boyce farm in Central district through the Big Injun sand to 2,210 feet and it was dry and is being abandoned.

In Ritchie County W. R. Hays completed deepening the No. 3 Ruth Snodgrass in Murphy district in the Injun sand at 2,097 feet. It is a gas well gauging 960,000 feet a day. In this district, the Hope Natural Gas Co. completed deepening No. 7815 Myrtle Miller in the Injun sand at 2,045 feet and it is a small gas well gauging 33,624 feet.

In Wayne County, Woodall and Jackson Gas Co. completed No. 2 Sarah Sanson Heirs in Union district at 3,185 feet. The Big lime was at 1,282-1,444 feet; Big Injun, 1,474-1,544 feet; Berea, 2,068-74 feet; Brown shale, 2,167-2,230 feet; Gray shale, 2,230-2,713 feet; Brown shale, 2,713-3,185 feet. The volume from the Big lime, Injun sand, was 850,000 feet a day and from the Brown shale 176,000 feet a day.

In Wirt County, Andrews & Roberts drilled a second test on the G. W. Gillespie farm in Clay district through the Injun sand to 960 feet and it was dry.

In Clay County, the short log of the Pittsburgh & West Virginia Gas Co.'s test on the J. D. Engle farm in Otter district is: Little Dunkard, 406-458 feet; Big Dunkard, 524-750 feet; Salt, 1,585-1,625 feet; Maxton, 1,742-82 feet; Big lime, 1,880-1,970 feet; Big Injun, 1,970-2,073 feet, with 240,000 feet of gas in the Big Injun and Squaw sands.

Oriskany Gas Field

There was a dry hole in Poca district, Kanawha

(Continued on Page 94)

North Louisiana, Arkansas

By GEORGE WEBER

Good Well in Magnolia Pool; Cotton Valley's Deep Failure

SHREVEPORT, La., Nov. 21.—Cotton Valley and Shreveport in Louisiana, and Magnolia in Arkansas continued as the most active spots in the Tex-La-Ark division during the past week, with varying results, as general activity in the tri-state area slacks off.

The most important development was of a disappointing nature: The first dry hole in the lower Marine at Cotton Valley, defining the limits of production in that major field. This failure, on the southwest edge of the structure, will aid in anticipating the production limits on all sides, due to the regularity of the anticline. However, there is believed to be a considerable flattening on the northeast side of the pool, which may result in a production extension beyond the contours as now plotted. This interesting development will be watched with interest.

The first dry hole of the field, in the deep formation, was an outpost, Oliphant Oil Corp. No. 1-B Stewart, C NW NE Section 5-20-10. The test, southwest offset to an edge producer, topped the "A" sand at 8,378 feet, "B" sand at 8,578 feet, "D" sand at 8,658 feet, Bodcaw sand at 8,747 feet and Davis or "E" sand at 8,997 feet. The hole was carried through the "E" and "F" sands to a total depth of 9,187 feet. No showing of oil was found in any of these lower Marine sections.

On the south side, Oliphant Oil Corp. No. 1 Fred Banks, C SE NW Section 2-20-10, was also abandoned in the past week. This outpost is situated still farther down structure from the Stewart test, and it was topped in the Travis Peak section, at 7,480 feet.

Good Well in "D" Sand

To partially offset these failures at Cotton Valley, a good producer was completed in the "D" sand, marking the second such oil well for the Mid-States Oil Corp. The company's No. 1 Welori Lumber Co. unit, a south edge well in the NE cor. Section 3-20-10, last week cored the "D" section at 8,521-53 feet. The Bodcaw was topped at 8,619 feet, and the gas-oil contact in that section was tentatively located at about minus 8,395 feet, subsea. A string of 7-inch casing was set at 8,761 feet, and operators perforated in the "D" section at 8,519-33 feet with 60 shots.

The well was turned into tanks late in the week. On the first hour's gauge, it made 13.92 bbls. of 46-gravity "sweet" crude, with no water, through a quarter-inch choke, with tubing pressure at 960 pounds and casing pressure at 1,080 pounds. Hourly gauges were made for a period of eight hours, and the increase in flow raised the hourly average to 21.5 bbls. At the end of the fourth flowing hour, the pressures were 1,200 pounds on tubing and 1,360 pounds on the casing. As the well is near the apparent edge of production in the field it is doubtful that south offsets will be drilled, at least for the present. The second "D" producer is an east offset to the first, which has shown a good production record over the past several months.

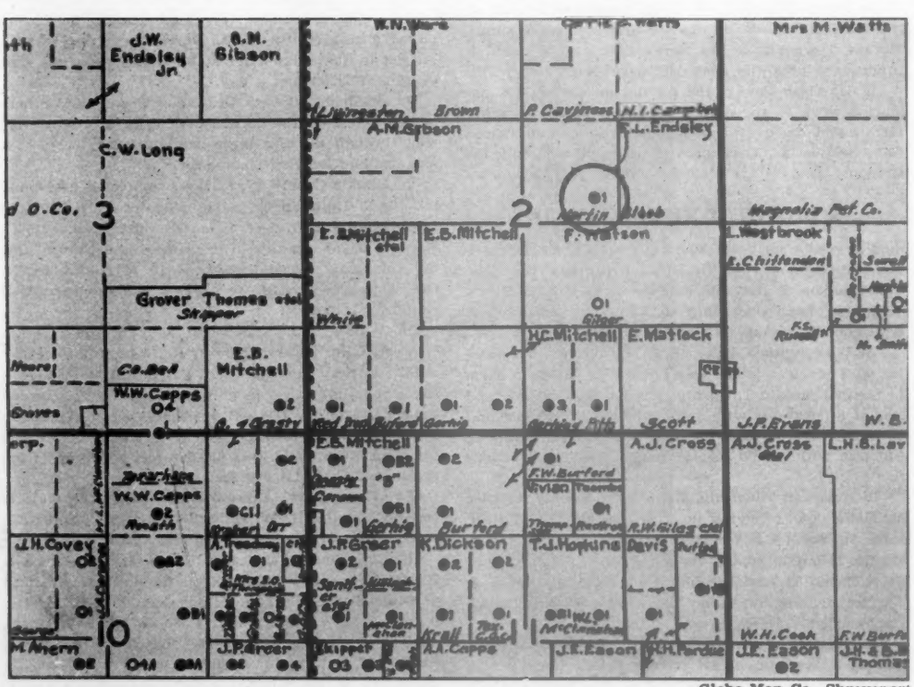
Two locations west of the new "D" sand oil well, Hunt Oil Co. No. 1 Sandifer, C NE NE Section 4-20-10, was having mechanical trouble as cement was lost in attempting to plug back from a total depth of 8,720 feet. The Hunt test cored the "D" sand, which apparently showed oil several days ago, but upon setting casing and perforating in that section, it tested salt water. In trying to plug back to 8,558 feet cement was lost, and a second attempt will be made to plug back and perforate at 8,533-38 feet.

Shreveport Field

The outlook for the Shreveport field seemed brighter this week, with two tests showing indications of becoming oil producers. C. D. Loe No. 1 Meyer, SE cor. Section 33-18-14, after topping the Pettit lime section at 5,592 feet cored through the porous lime, and set 5½-inch casing at 5,627 feet. Casing was perforated with 58 shots at 5,602-25 feet and the production developed only tested salt water. It is believed that the hole was carried too deep into the salt water section, and the operators are preparing to plug back. The first attempt to squeeze was not successful, as the plug did not hold, but operators were expected to make a second attempt.

The second important current test is the Rodessa Oil & Refining Co. No. 1 Chandler, located within the Shreveport city limits in the C SW NE Section 34-18-14. After coring the Pettit formation, a drill stem test was made at 5,540-45 feet. In 10 minutes the well showed 5,000,000 feet of gas and 250 feet of oil. A second drill stem stem test showed recovery of six joints of oil in 10 minutes at 5,545-49 feet. A string of 7-inch casing was set at 5,580 feet and the well will be given a production test early this week.

Two new locations were announced and work begun this week by R. E. Allison, discoverer of the field, and Harry Hanbury is to drill No. 1 Lowe, an outpost, a mile east, and slightly north of the discovery well.



Globe Map Co., Shreveport

F. W. Martin Drilling Co. No. 1 Watts, a north outpost to the Miller County extension of the Rodessa field, is attempting completion. The well has tested oil, and salt water, believed to be coming from behind the casing

Production by Pool

Estimated daily gross production all companies week ending November 18:

NORTH LOUISIANA

	Bbls.
Bellevue	660
Caddo light	4,120
Caddo heavy	2,585
Converse	575
Cotton Valley heavy	95
Cotton Valley light	*10,100
Cross Lake	750
De Soto and Red River	1,255
Elm Grove	320
Haynesville	2,900
Holly	90
Homer	2,620
Lisbon	5,250
Pleasant Hill	100
Rodessa	30,065
Sarepta-Carterville	†410
Sligo	1,185
Sugar Creek	305
Urania	2,665
Zwolle	3,800
Total North Louisiana	69,850

SOUTH ARKANSAS

Buckner	1,450
Champagnolle	1,400
El Dorado	1,810
Lisbon	265
Miller County	360
Nevada	630
Rodessa	4,475
Schuler	18,610
Smackover light	2,000
Smackover heavy	15,900
Stephens	550
Troy	1,120
Urbana	1,175
Village	995
Total South Arkansas	50,740

Texas side of Rodessa field 30,705 bbls. daily.

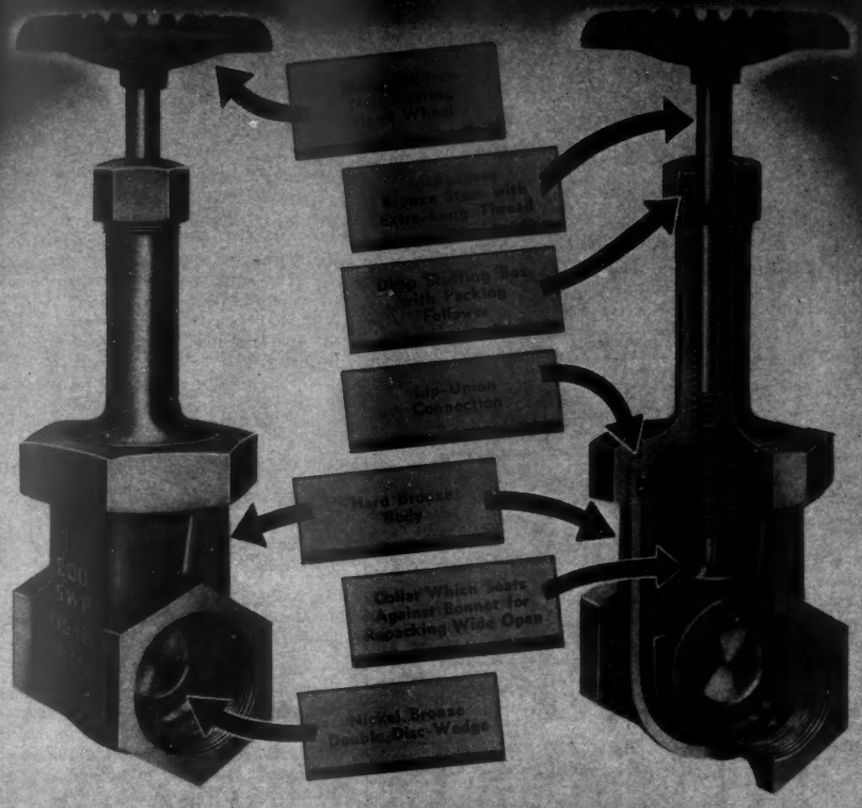
*3,910 bbls. is distillate. †100 bbls. is distillate.

Magnolia

In Columbia County, South Arkansas, the Magnolia field gained a fourth good producer, with the completion of the Atlantic Refining Co. No. 1 L. Garrett C NW SW Section 13-17-20. The test is an east offset position to the Vaughn No. 1 Garrett, which cored the lime over 100 feet higher than in the discovery well. After hitting the top of the lime at 7,519 feet in the Atlantic well, the hole was carried to a total depth of 7,627 feet, and 7-inch casing was set at 7,626 feet. Perforations were shot at 7,580-7,622 feet and on initial production test the well showed 139.5 bbls. the first hour through a half-inch choke with tubing pres-

(Continued on Page 94)

JARECKI offers a *new* HEAVY BRONZE GATE VALVE


Bronze Stem with Extra Long Thread
Deep Stuffing Box with Packing Follower
Lip-Union Connection
Hard Bronze Body
Collar Which Seats Against Bonnet for Repacking Wide Open
Nickel Bronze Double Disc Wedge

JARECKI announces with pleasure this new, heavy bronze gate valve, primarily designed for refinery and natural gasoline plant service for positive shut-off of gasoline, propane and other volatile oils.

This valve is a distinctly superior product. Body is of hard bronze, high in tin content, with a tensile strength of 35,000 lbs. Stem is of Manganese bronze. Discs are durable nickel bronze, and renewable. The lip-union connection between bonnet and body provides an exceptionally tight and strong construction. Stuffing box has deep recess for packing, assuring tightness.

Designed for 200 lbs. S. W. P.; 400 O. W. G. working pressures.

The JARECKI line of brass, bronze and hard bronze valves and fittings includes every type of globe, gate, check, and safety valve, and every type of cock and fitting required for oil industry service.

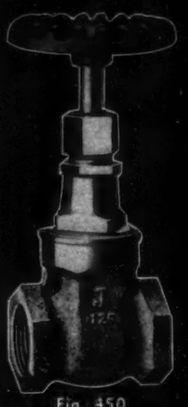


Fig. 450
Standard Bronze
Gate Valve

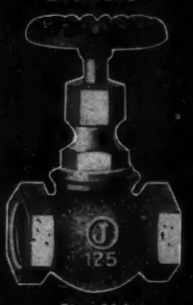


Fig. 414
Heavy Standard
Bronze Globe Valve

Fig. 424
Bronze Regrinding
Swing Check Valve

Fig. 426
Heavy Standard
Bronze Check Valve

Fig. 491
Heavy Standard
Bronze Steam Cock

Fig. 326-A
Brass Tee
125 Lb. S. W. P.

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West, Central and Panhandle Texas

By
D. H. STORMONT

New Pool in Jones County; Slaughter Pool Is Extended

FORT WORTH, Tex., Nov. 21.—A 2-mile extension to the Slaughter pool in Hockley County, favorable developments in two outpost tests to the Bennett pool, and progress of several wildcats in the southern part of the basin centered interest in West Texas over the week.

North Basin Area

Having been testing for many weeks, Texas Co. No. 1-B Mallett Land & Cattle Co., is now in the completion stage and the well promises to extend the Slaughter pool 2 miles to the west. After deepening to 5,035 feet from 5,007 feet the well flowed 179 bbls. of oil cut with 1.2 per cent basic sediment and water, following acid treatment with 1,500 gallons. The test is now swabbing into pits after treatment with 3,000 gallons of acid.

Two Bennett pool outposts attracted considerable attention. Shell Petroleum Corp. No. 1 Ruyts, Section 743, 1¼ miles southeast of the pool, swabbed 48 bbls. of fluid in 24 hours, 70 per cent oil and 30 per cent drilling water. This showed an increase over its first gauge of only 30 per cent oil content in 48 bbls. of fluid. Test is bottomed at 5,266 feet, in lime, with lime pay at 5,113-20 feet and at 5,130-39 feet. About a mile and a quarter southwest of the Bennett pool, J. E. Mabee No. 1 Willard, Section 741, was preparing to drill plug from casing cemented at 4,850 feet. Total depth is 4,940 feet, with oil showings logged in the lower part of the hole.

Dickens County, in the extreme northern part of the Permian basin, centered much attention as Humble Oil & Refining Co. staked a 6,000-foot test about 1¼ miles southeast of a wildcat that has been drilling for several weeks. The drilling wildcat is Bond Jones and others No. 1 on the Foard Estate, I.&G.N. Survey, north of the town of Dickens. Humble began moving in for a deep test, No. 1 Matador Land & Cattle Co., Section 26, Block 1, Shock & Arnold Survey. The new test is about a mile and a half from the edge of the Jones block.

Central and South Basin Area

The shallow Shearer pool of Pecos County received a mile east outpost and two other wells centered attention in the county. Mickey Bell made location for his No. 1 Shearer, Section 111, Block 10, H.&G.N. Survey, about a mile east and a little north of the closest production.

Humble Oil & Refining Co. No. 1 A. H. Robertson, Section 27, Block OW, T.C. Survey, Pecos County, wildcat, 6 miles north of the Pryor-Courtney area, has been plugged and abandoned at 3,668 feet after sulfur water was recovered on a drill stem test.

Stanley A. Thompson No. 1 Elsinore Cattle Co., Section 53, Block D, G.C.&S.F. Survey, long-drilling Pecos County wildcat, is planning to plug back about 100 feet, set a whipstock and drill through pipe in an effort to again pick up pay found at 7,030-80 feet. The test has been fishing for lost tools at 7,342 feet for several weeks.

In the Rogers & Rogers discovery area in Andrews County, Broderick & Calvert No. 1 O. B. Holt, Jr., west offset to the discovery well, is installing pump with 1,200 feet of oil in the hole. Location is in Section 1, Block 43, T.&P. Survey, in the southern part of the county. The test was plugged back to 4,476 feet from 4,479 feet where salt water had been encountered.

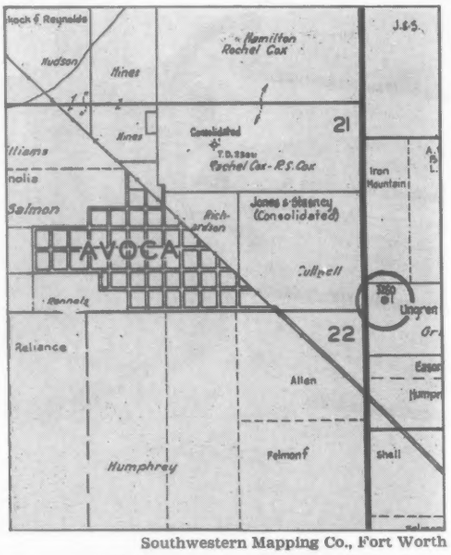
Extending the Means pool of Andrews County a quarter mile to the west, Humble Oil & Refining Co. No. 51 Means was reported to have pumped 440 bbls. of oil in the first 13 hours of Railroad Commission gauge. The outpost is bottomed at 4,512 feet and has been given three-stage acid treatment. Four miles west of the Means pool, abandonment is expected for H. C. Wheeler No. 1 White-Shelton, Section 18, Block A-36, P.S.L. Survey. The test is now shut down at 4,615 feet.

A better producer than was expected developed at the Aloco Oil Co. and Cranfill No. 1-A Tubbs, which extended the Tubbs area nearly a mile southeast. The well made 291 bbls. per day with a ratio of 2,345 to 1. Total depth is 4,504 feet.

WEST CENTRAL TEXAS

Jones County centered the attention of West Central Texas operators as two new areas were opened in the county. One is a new pool discovery and the other a deeper horizon for the Steffens pool in the eastern part of the county.

About 2 miles southwest of the Avoca pool, in the northwestern part of Jones County, Ungren & Frazier discovered a new producing area when their No. 1



Southwestern Mapping Co., Fort Worth

Ungren & Frazier opened a new Palo Pinto lime oil pool in northwestern Jones County when No. 11 Griffin was completed for 43 bbls. of oil in 14 hours

Griffin Estate, Section 199, B.B.B.&C. Survey, flowed 43 bbls. of 42-gravity oil through open tubing in 14 hours. The well is flowing from 3 feet of Palo Pinto, basal Canyon lime at 3,247-50 feet. A north offset to the well has been staked by Humble Oil & Refining Co. and Iron Mountain Oil Co. as their No. 1 J. T. Taylor, in the north half of Section 199, B.B.B.&C. Survey.

Opening a new and deeper pay in the Steffens pool of Jones County, Ungren & Frazier completed No. 1 Steffens in the east extension area for 263 bbls. of oil per day. The well is producing from a section at 1,894-98 feet, the regular pool pay-level being from 1,853 to 1,874 feet. Location of the well is in Section 32, Block 15, T.&P. Survey.

Throckmorton County received a new deep wildcat when the Red Bank Oil Corp. awarded contract to Taubert & McKee Drilling Co. for a 4,000-foot test in the southwestern part of the county, near Woodson.

Wildcat oil production will be sought in south-central Shackelford County in a shallow well spudded in by Iron Mountain Oil Co. and Bert N. Honea. The well will test the Bluff Creek horizon at around 1,600 feet. It is in the W. H. Green lands, southwest quarter of Section 66-12, T.&P. Survey, and 18 miles southwest of Albany.

Promise of Ranger lime production in the Echo Fry sand pool of Coleman County, 12 miles northeast of the town of Coleman, was indicated as Brannon & Murry No. 1 Dibrell was reported to have set casing for a production test. The well topped lime at 3,047 feet and showed its first oil at 3,150 feet with an increase in deepening to 3,158 feet. Plug will be drilled sometime this week.

Northwest of Rule in Haskell County, the closely watched wildcat being drilled by Roeser & Pendleton in the Dougherty lands was planning to run casing to 4,375 feet to test through perforations several minor shows of oil in the Palo Pinto lime from 4,305-75 feet. The test completed its contract depth of 4,605 feet without having encountered more than slight shows.

A new shallow wildcat test has been spudded in Parker County by E. L. Ford and associates as their No. 1 well. The test is in the western part of the G. W. Duncan Survey, Abstract 375, and will be carried to 1,100 feet with cable tools.

WEST TEXAS FIELD COMPLETIONS
(24-hour tests)

Andrews County

Barnsdall Refining Co. No. 4 Ford, 4,300-4,400 feet, 1,488 bbls.

Crane County

Aloco Oil Co. No. 1-A Tubbs, 4,296-4,504 feet, 291 bbls.

Ector County

Cities Service Oil Co. No. 7-C Cummins, 4,225-73 feet, 281 bbls. Gulf Oil Corp. No. 134 Goldsmith, 4,148-4,265 feet, 978 bbls.; No. 135 Goldsmith, 4,100-4,205 feet, 1,425 bbls. Humble Oil & Refining Co. No. 20-C Scharbauer, temporarily abandoned location. J. E. Mabee No. 1 Paul Moss, 4,105-85 feet, 1,105 bbls.; No. 2 Paul Moss, 4,050-4,202 feet, 1,795 bbls. Phillips-Pure No. 46 C. Cowden, 4,111-65 feet, 1,790 bbls. Schermerhorn Oil No. 5-B J. L. Johnson, 4,020-4,177 feet, 1,037 bbls. Shell Petroleum Corp. No. 6 Slator, location temporarily abandoned. Sinclair Prairie Oil Co. No. 1 Hugh Corrigan, 4,144-4,328 feet, 1,355 bbls. Stanolind Oil & Gas Co. No. 74 J. M. Cowden, 4,080-4,308 feet, 628 bbls. L. H. Wentz No. 4-B T.&P. Land Trust, 4,050-4,152 feet, 2,410 bbls. Joe Worsham No. 1 Continental-Connell, 3,470-3.600 feet, 106 bbls.

Gaines County

J. Brown No. 1 A. L. Wasson, 4,932-5,010 feet, 790 bbls.

Hockley County

Snowden & McSweeney No. 1 A. A. Slaughter, dry and abandoned at 5,096 feet.

Howard County

Murko Oil & Royalty Co. No. 3-A Chalk, 2,733-2,942 feet, 1,142 bbls. Parten & Strickland No. 1 O'Daniel, dry and abandoned at 2,805 feet.

Tom Greene County

J. B. Watson No. 1 Llano C.S.L., dry and abandoned at 705 feet.

Pecos County

British American No. 8 B. R. Payton, 1,195-2,090 feet, 173 bbls. Burleson No. 1 Fromme, dry and abandoned at 1,585 feet. E. B. Carruth No. 1 J. H. Trippett, location abandoned. Humble Oil & Refining Co. No. 1

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211 So. Cheyenne Tulsa, Oklahoma

A. H. Robertson, dry and abandoned at 5,368 feet. Superior Oil Co. No. 5 Iowa Royalty Trust, 1,627-55 feet, 99 bbls.

Upton County

Gilcrease Oil No. 20 Gibbs, 2,310-15 feet, 150 bbls.

Ward County

Johnson-Morrison No. 3 Cummins, 2,153-2,260 feet, 65 bbls. Sinclair Prairie Oil Co. No. 3 Magnolia-Sealy, 3,055-60 feet, 325 bbls.

Winkler County

Buffalo Oil Corp. No. 1 Cities Service-Daugherty, 3,008-60 feet, 52 bbls. Emperor & Iverson No. 4 Thompson-Cowden, location abandoned. Falcon No. 8 McCutcheon, location abandoned; No. 14 McCutcheon, location abandoned. Magnolia Petroleum Co. No. 192 Walton, 2,823-80 feet, 1,768 bbls.; No. 193 Walton, 2,830-2,944 feet, 2,706 bbls.; No. 194 Walton, 3,140-3,214 feet, 742 bbls.; No. 195 Walton, 2,825-79 feet, 1,748 bbls. S. W. Richardson No. 6 Cities Service-Scarborough, 2,918-3,060 feet, 350 bbls.

Yoakum County

Honolulu Oil Co. No. 7-677 Bennett, 5,050-5,260 feet, 1,622 bbls. Humble Oil & Refining Co. No. 3 H. O. Wooten, 4,870-5,346 feet, 730 bbls. J. W. Murchison No. 2-B C. A. Elliott, 4,802-5,125 feet, 822 bbls. Texas Co. No. 1 Ellen Keller, 4,975-5,115 feet, 253 bbls.; No. 1-B A. Miller, 4,985-5,070 feet, 352 bbls.; No. 3 H. O. Wooten, 4,895-5,056 feet, 519 bbls. Texas Pacific Coal & Oil Co. No. 13 Rugh Bennett, 5,060-5,240 feet, 1,676 bbls.; No. 1 Eula Sanders, 4,990-5,130 feet, 541 bbls.

WEST CENTRAL TEXAS COMPLETIONS

(24-hour tests)

Brown County

Brown & Gardner No. 2 J. Tabor, dry and abandoned at 2,457 feet. G. P. Mitcham No. 2 A. J. Newton, 1,246-60 feet, 15 bbls.

Callahan County

H. Walter McGee No. 1 McDermett, dry and abandoned at 590 feet. C. H. Siedous and others No. 1 Joe E. Evans, 500-12 feet, 1½ bbls.

Fisher County

S. & D. Daube No. 1-A Bennett, dry and abandoned at 3,689 feet. Montour Producing Co. No. 1 W. C. Strickland, 3,587-92 feet, 34 bbls.

Jones County

C. C. Dodson and others No. 2 Steffens, 1,880-99 feet, 330 bbls. Iron Mountain Oil No. 7 Jones & Stasney, 3,236-44 feet, 761 bbls. Humble Oil & Refining Co. No. 1 Chittenden, 3,017-22 feet, 164 bbls. Iron Mountain Oil No. 5 Carl Olander, 3,223-31 feet, 389 bbls. F. W. Merrick, Inc., No. 1 W. V. Tripplet, dry and abandoned at 2,628 feet.

McCulloch County

Noble & Johnson No. 1 Patton, 1,552-60 feet, 5,500,000 feet of gas.

Shackelford County

Beaumont and others No. 2 M. Harbough, 396-404 feet, 10 bbls. Butler & Horne No. 2 J. H. Nail Estate, 1,400-03 feet, 55 bbls. J. G. Hammond No. 1 E. Morrison, dry and abandoned at 5,222 feet. T. W. Lee and H. P. Key No. 9 Diller, 514-22 feet, 10 bbls.; No. 2 T. W. Lee, 1,030-41 feet, 2,500,000 feet of gas. Moutray & King and others No. 1 W. P. Newell, dry and abandoned at 1,475 feet. Pittman-Munzy & Smart No. 1 W. H. Green, 414-22 feet, 10 bbls. West & Hones No. 1 L. H. Hill, dry and abandoned at 950 feet.

Stephens County

Texas Pacific Coal & Oil Co. No. 2 J. R. Coody, 1,893-1,913 feet, 27 bbls.

PANHANDLE FIELD COMPLETIONS

Carson County

Stanolind Oil & Gas Co. No. 6 McConnell, 2,707-2,907 feet, 36,628,000 feet gas.

Gray County

S & S Oil Co. No. B-1 Benton, 3,260-90 feet, 371 bbls. Texas Co. No. 29 Saunders, 2,842-2,865 feet, 192 bbls.

Hutchinson County

Chism Drilling Co. No. 4 Loving, 2,990-3,054 feet, 516 bbls. Drilling & Exploration Co. No. 25 Watkins, 2,982-3,030 feet, 462 bbls. Bob Murphy No. 4 Whittenberg, 2,718-84 feet, 168 bbls. Phillips Petroleum Co. No. 2 Supreme, 3,230-63 feet, 306 bbls. Tide Water Associated No. 4 Umphres, 3,104-48 feet, 744 bbls. Tripplehorn Brothers No. 9 Ware, 3,035-3,110 feet, 210 bbls.

Moore County

Texoma Natural Gas Co. No. 5 Terry Thompson, 2,610-3,205 feet, 114,500,000 feet gas.

Wheeler County

Gillispie & Sons No. 3 McMurtry, 1,795-1,987 feet, 8,612,000 feet gas. Teci Production Co. No. 3 Stewart, 2,073-78 feet, took 20-bbl. allowable without test.

Eastern Fields

(Continued from Page 89)

County, the first in a large number of completions. In the test of the Columbian Carbon Co. on the W. H. Miller and others farm the Oriskany was topped at 4,978 feet and the hole carried to 5,061 feet without any more than a showing of gas. After shot it gauged only 50,000 feet a day and is being abandoned.

In this district, the Poca Fork Oil & Gas Co. completed the test on the Levi Combs farm at 5,254 feet and shot and lost the bailer but will produce the gas since it was impossible to recover the bailer without loss of too much gas.

Among the new locations for this district, the following two are listed: United Fuel Gas Co. will drill a test No. 4769 on the Osa Ray Schmittauer farm and also a test, No. 4823, on the G. C. Patterson and others farm.

In Poca district, the United Carbon Co. is drilling at 5,144 feet in the test on the J. H. Prillerman farm or 98 feet in the Corniferous lime. This company is down 1,730 feet in a test on the J. H. Burdette farm and 3,420 feet on the William Moss and others test. The Hays Oil & Gas Co.'s final test in the H. C. Painter test was 13,287,000 feet a day 30 minutes after shot. This company is down 4,310 feet in a test on the F. M. Ray farm. The Meigs Development Co. has reached 4,090 feet in a test on the Lola and Homer Fields farm. The West Virginia Gas Corp. is drilling at 1,217 feet J. H. Burdette and others lease. The Glenn Oil & Gas Co. is down 3,720 feet in a test on the Mary Beaver farm.

Godfrey L. Cabot, Inc., has three locations for tests on the Helen M. Hoge farm, on the Putnam Co. lease, and on the Poca Coal Land Co. lease. The Mullins Gas Co. is down 1,975 feet on the Mullins & Odell test and is rigging up the W. Ernest Fisher test.

In Poca district, the United Fuel Gas Co. is drilling the following: B. B. Milam test at 1,778 feet; No. 4794 Nancy Carney at 1,550 feet; No. 4796 W. J. Glass at 2,413 feet; No. 4807 C. O. Slater and others at 1,191 feet; No. 4808 J. H. Bumgardner at 4,727 feet; No. 4811 S. E. Gibson at 3,488 feet; No. 4816 Mary L. Miller at 1,834 feet; building rig for No. 4768 John Wines; and for No. 4812 J. A. Wines and others, with rigs up for No. 4815 Mamie A. Ray and No. 4818 W. H. Fisher.

In Elk district, the Columbian Carbon Co. is down 4,832 feet in No. 2 on the Ida Hughart farm. United Carbon Co. is drilling at 4,075 feet in the Van Canterbury test.

Deep Tests

In Jackson County, Godfrey L. Cabot, Inc., is drilling at 1,360 feet in a test on the Walker & Jones lease in Washington district. In Grant district, Pleasants County, the Columbian Carbon Co. has reached 4,452 feet in a deep test on the Giles Hammat farm.

New Work

In Braxton County, the Pittsburgh & West Virginia Gas Co. has a location for a test on the A. B. Mollahan farm in Birch district, elevation 923 feet. In Clay County this company will drill a test on the Ed L. Hyre and Adena Corp. lease in Otter district, elevation 1,108 feet.

In Cabell County, the Childers Gas Co. has a location for a test on the W. S. Childers farm in McComas district, elevation 750 feet. Here the Arnold Gas Co. is down 3,225 feet in a test on the Henry S. Childers farm.

In Gilmer County, W. H. Satterfield has a location for a test on the Hayward Ellyson farm in Glenville district, elevation 1,113 feet. In this district, the Pittsburgh & West Virginia Gas Co. will drill a test on the Granville Collins farm, elevation 1,019 feet. In DeKalb district, the McCall Drilling Co. has a location for a test on the J. H. Haught heirs and William Stalnaker heirs farm, elevation 878 feet.

In Roane County, Guy M. Boggess and others have a location for a test on the William Boggess farm in Reedy district on Buck Run. In Harper district, John C. Campbell and B. F. Wright will drill a test on the G. W. Gandee farm, elevation 850.7 feet.

In Tyler County, Earl Haught has a location for a test on the Jacqueline Thorne farm in Union district. In Wetzel County, W. F. Burgess has a location for a test on the Rose and O. W. Erlewine farm in Proctor district, elevation 665 feet.

Gulf Coast Fields

(Continued from Page 86)

perforated casing 5,995-6,027 feet, 437 bbls., quarter-inch choke.

Chambers County

Anahuac field: Humble Oil & Refining Co. No. 25 Johnson, 7,150 feet, 744 bbls., quarter-inch choke. Cotton Lake field: Humble Oil & Refining Co. No. 3 Nancy Flewellen, 6,644 feet, abandoned. F. A. Gillespie and others No. 1 Kirby Petroleum Co., 6,523 feet, abandoned. J. R. Turnbull No. 3 Lawrence, sand 6,465-90 feet, 117 bbls., eighth-inch choke.

Fort Bend County

Thompson field: Gulf Oil Corp. No. 30 Booth, perforated casing 3,590-94 feet, 26 bbls., swabbing and flowing.

Galveston County

Dickinson field: Humble Oil & Refining Co. No. 1 Wilkinson, 8,277 feet, abandoned.

Harris County

Fairbanks field: Amerada-Stanolind Oil & Gas Co. No. 1 Alex Louis, sand 6,823-43 feet, 340 bbls., quarter-inch choke. Bridwell Oil Co. No. 1 Gibson, perforated casing 6,851½-55½ feet, 189 bbls., eighth-inch choke. Housh & Thompson No. 1 G. L. Baines, 7,355 feet, abandoned. Noble & Baker No. 1 Hillegeist, sand 6,830-52 feet, 649 bbls., quarter-inch choke. Tomball field: Shell Petroleum Corp. No. 2 Rudel, sand 5,566-69 feet, 489 bbls., quarter-inch choke.

Liberty County

Hardin field: Atlantic Refining Co. No. 2-B Johnston-Finley, perforated casing 7,666-70 feet, 96 bbls., eighth-inch choke. Humble Oil & Refining Co. No. 5-A Partlow, sand 7,590-7,610 feet, 462 bbls., quarter-inch choke.

Orange County

Orange field: Gulf Oil Corp. No. 1 LeFlour, sand 5,935-49 feet, 129 bbls., quarter-inch choke. Red Bank Oil Co. No. 1 J. Harmon, 5,585 feet, 166 bbls., eighth-inch choke.

Wharton County

Pickett Ridge field: Gilcrease Oil Co. No. 2 Duson, sand 4,677-90 feet, 124 bbls., eighth-inch choke.

La.-Ark. Fields

(Continued from Page 90)

sure of 1,100 pounds. Completion of this fourth producer in the Magnolia field further adds to the promising outlook for good production to be obtained to the south, with the lime showing the steepest dip yet discovered in this area.

A Columbia County wildcat, Tide Water-Seaboard No. 1 J. T. Beene, located in C SE NW Section 15-18-19, about 8 miles southeast of the Magnolia field, cored sand this past week at 7,305-10 feet with a show of oil. Operators were last reported reaming down to make a drill stem test at 7,310 feet.

Rodessa

The F. W. Martin Drilling Co. No. 1 Watts, a north outpost to the Miller County extension of Rodessa, is this week attempting to shut off salt water, believed to be coming from behind the casing. The well showed oil on a previous test, and was plugged back from total depth of 6,252 feet to 6,210 feet. It tested 215 bbls. of oil and 60 bbls. of salt water in 14 hours on the latest production test.

Michigan Field Report

By
O. C. PRESSPRICH

Unstable Local Crude Price Affects Work in the Field

SAGINAW, Mich., Nov. 21.—Sharp decline in new production was noticeable last week in Michigan oil fields as operators generally sought means of controlling threatened overproduction in the face of a weak local crude market and impending lower prices in the state. New production was down 50 per cent form three weeks ago as pipe line proration curbs and other measures designed by producers held down the drilling in of new wells in proved areas.

Ten oil wells were added in all fields, with Clare County's Freeman-Redding pool accounting for four, to continue domination of new production. The Redding area, however, showed three dry holes, indicating a sharp dip in formations in Section 34, close to prolific wells. Operators believed the dry holes indicated merely a dip in formations rather than establishment of a definite boundary in the south part of the field. In the previous week the Clare area added five wells for more than 15,000 bbls. daily potential. The four wells brought in last week totaled 5,500 bbls. daily potential.

With a definite proration move under way among operators in Clare in addition to the pipe line proration of about 7,000 bbls. daily take, which is approximately 400 bbls. per well per day, new production is expected to slacken materially until the crude market becomes steadier.

Collapse of the first proration move in Allegan, where operators in the "21" pool of Overisel Township recently signed agreements not to sell oil under $1 a barrel, was reported the past week. Shortly after the move was aimed to prevent collapse of prices in the field prices fell from $1 to 90 cents, with one pipe line carrier paying 88 cents. Within the past week it is said that some oil was being sold as low as 74 cents in Allegan and Van Buren.

Allegan County pools added only two new producers last week and Van Buren County's Bloomingdale field reported three new oil wells.

Gladwin County broke into new production with a significant addition in the southeast part of Bentley Township, one of the best in the pool, and located in comparatively undeveloped territory.

Allegan County

Manlius Township (3n-15w)—Haze & McGill No. 1 Overbeck, SW NW SE Section 10, failed to log commercial oil and will be abandoned.

Overisel Township (4n-14w)—One producer was the extent of new production in the Overisel pool as operators watched crude market conditions. Stewart Oil Co. No. 2 Freye, SE NW SW Section 22, gauged 350 bbls., natural flow.

Salem Township (4n-13w)—A. S. Cochran No. 4 Nienker, NE SW NW Section 21, was the lone Salem producer, gauged at 100 bbls., naturally.

Clare County

Freeman Township (18n-6w)—Three favorable producers, one of which was a pool extension westward, were brought in during the week in Freeman Township. Basin Oil Co. No. 2 Van Horn, NE NE NE Section 4, was the west extension rated at 1,000 bbls. daily, naturally. Socony-Vacuum No. 7 Van Horn, SE NE NW Section 3, rated as the largest producer of the week in all fields being rated at 3,000 bbls. daily, naturally. Pure Oil Co. No. A-2 Van Horn, NW NE SW Section 3, was the third producer in the area, estimated at 1,000 bbls. after acid.

Redding Township (19n-6w)—Three failures in the Redding pool overshadowed the lone new producer, which extended the proved area half a mile west. Two of the dry holes were in Section 34 and were offsets of big producers, and one in Section 35. The Section 34 failures were apparently located on a dip in formations, operators said, and were not taken as permanent markers. Gulf Refining Co. No. 2 Hall-Arthur, NW SE SW Section 34, located only 700 feet north of Gulf's big well in the area, was the first failure of the week. Daily Crude Oil Co. No. 3 Van Horn, NE SW SW Section 34, tapped another nonproducer, the hole going into water the same as the Gulf well. Taggart Brothers No. 1 Federal Land Bank, C SE Section 35, was the third failure scheduled for abandonment. Pure Oil Co. No. B-1 Bicknell, C S half SE SE Section 28, a half-mile west extension, was considered the most significant favorable addition to the area. It rated approximately 500 bbls. daily, natural flow, on early reports.

Gladwin County

Bentley Township (17n-2e)—Best of the recent additions to the Bentley pool, and ranking among the best producers in the area indicated a possible new exploration and development in the southeast part of the township. The well was McClanahan Oil Co. No. 2 Connolly, NW SW NW Section 25, rated as 200 bbls. after acid. Most of the Bentley producers average about 50 bbls. daily.

Midland County

Midland Township (14n-2e)—Fortney Oil Co. No. 1 Sias, SE NE NW Section 19, a wildcat attempt to link up with production in Larkin Township, failed last week and will be abandoned.

Van Buren County

Bloomingdale Township (1s-14w)—Three producers and three dry holes were logged in Michigan's fastest growing oil pool, which has more than 50 locations staked or drilling. The three producers added approximately 3,900 bbls. daily. W. H. Thouriby No. 1 Bell, NE SE NE Section 17, was the field's largest producer of the week, estimated at 1,500 bbls. daily. J. B. Reed No. 1 Robart, NE SE NE Section 17, was rated at 1,400 bbls., and H. C. Nelson No. 1 William, SE SE SE Section 9, gauged 1,000 bbls. The three dry holes were widely separated. They were T. F. Caldwell No. 1 Munn, SE SW NW Section 16; Fisher & McCall No. 1 Brown, NE NE SE Section 17, and Lima Development Co. No. 1 Rouse, SW SW NW Section 32.

Oklahoma Fields

(Continued from Page 73)

Shell Petroleum Corp. No. 2 Bates, NE NE NW Section 26-2-7, an old well in the Fitts district, was recompleted at 4,357 feet for 5 bbls. of oil.

Minton & Osborn No. 2 Busby, SW SW NW Section 33-5-8, recently was completed for 13 bbls. of oil at 2,537 feet, total depth.

W. B. Osborn and others No. 3 Jones, twin well, SW NW SW Section 33-5-8, a recent completion, produced 6,640,000 feet of gas at 2,542 feet.

J. L. Casey and A. J. Harden No. 1 Norman, NE cor. Section 13-5-4, had dug cellar and pits. J. P. Getty No. 9 Masters, NW cor. Section 23-2-7, was a location.

Okmulgee County

Francis Corp. No. 2-A Massingale, NE NE NW Section 33-15-14, Okmulgee County, had pay at 1,607-09 feet, total depth, and pumped 5 bbls. of oil daily.

Conrad Lambert No. 1-A Lewis, SW SE SW Section 20-15-14, was dry and abandoned at 2,340 feet, total depth.

Oklahoma Oil Corp. No. 3 Smith, SW NE SE Section 17-13-11, found pay at 3,268 feet, was bottomed at 3,277 feet, and pumped 88 bbls. of oil in 24 hours.

Bryan Petroleum Co. No. 1 Shurmyer, NW SE NE Section 32-16-11, was dry and abandoned at 2,158 feet, total depth.

Ed Smith No. 1 Herrod, NE SE SE Section 36-15-11, was rigging up machine. Oklahoma Oil Corp. No. 2 Smith, NE NE SE Section 17-13-11, was moving in tools.

Lincoln County

Four wells recently were completed in the Sac and Fox area, Lincoln County. Wilcox Oil & Gas Co. No. 2 Saylor, NW SW NW Section 14-14-6, had Prue sand at 2,860-68 feet, total depth, was shot and pumped 116 bbls. of oil daily.

Wilcox Oil & Gas Co. No. 12 DeLozier, NE NW NW Section 15-14-6, total depth 3,006 feet, was shot and produced 65 bbls. of oil initially.

Hubbell & McCann No. 1-A Teeter, SE SW NE Section 9-14-6, topped Prue sand at 3,153 feet, total depth 3,186 feet, and produced 18 bbls. initially.

Mudge Oil Co. No. 6 Robertson, SE NW SW Section 10-14-6, had Prue sand at 3,120-26 feet, total depth, was shot and produced 85 bbls. of oil in 24 hours.

Creek County

Sinclair Prairie Oil Co. No. 13-A Upton, CEL NE NE Section 4-16-12, Creek County, was dry and abandoned at 1,694 feet, total depth.

Dundee No. 5 Beaver, NW NW NE Section 4-17-12, was dry and abandoned at 1,860 feet, total depth.

Other recent completions in Creek County: Sinclair Prairie Oil Co. No. 1-A Farmer, NW SW SW Section 3-16-7, total depth 3,004 feet, dry and abandoned. B. H. Korf No. 1 Stork, NW NE NE Section 5-16-9, dry and abandoned at 3,660 feet.

Walter Schaffer and others No. 1-A Wiley, NE NE SE Section 9-17-7, abandoned at 2,398 feet.

Sinclair Prairie Oil Co. No. 36 Dacon, SE cor. Section 16-17-7, completed for 2 bbls. of oil daily at 2,844 feet, total depth.

Big Four Petroleum Co. No. 3 Young, SE SE SW Section 13-19-17, total depth 2,670 feet, produced 30 bbls. of oil initially.

Same company's No. 2 Copeland, SW SE NW Section 24-19-7, had initial production of 40 bbls. of oil daily at 2,685 feet, total depth.

Tulsa County

R. C. Hobbs No. 2-B Barber, CEL NW NW Section 24-17-12, Tulsa County, topped pay at 2,292 feet, total depth 2,297 feet, and pumped 12 bbls. of oil in the first 24 hours.

Bert and others No. 1 Norman, SE NE NW Section 15-16-12, was completed recently for 750,000 feet of gas daily at 1,975 feet, total depth.

F. O. Brown No. 1-A Brown, SW NE NW Section 24-19-10, was dry and abandoned at 1,457 feet, total depth.

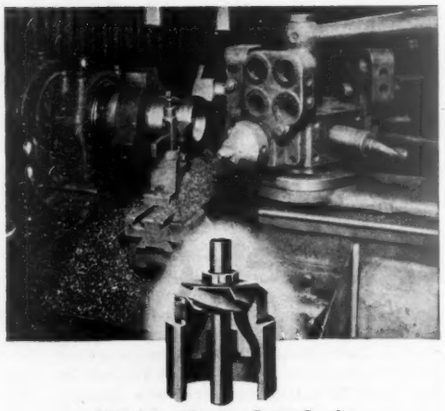
W. A. Weaver No. 2 Norman, C SE NW Section 15-16-12, was rigging up machine.

Muskogee County

Link Oil Co. No. 12 Mathews, C S half N half Section 19-15-15, Muskogee County, was completed for 5 bbls. of oil initially from pay topped at 1,428 feet, total depth 1,556 feet.

Latimer County

LeFlore County Gas & Electric Co. No. 29 Bascom-Maxey, C S half S half NW Section 2-6-22, Latimer



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County, recently was dry and abandoned at 2,000 feet, total depth.

Same company's No. 30 Gallagher, C SE Section 11-6-21, was a location.

Okfuskee County

C. W. Titus No. 1 Replogle, NW SW SE Section 23-11-8, Okfuskee County, was abandoned when water intruded at 3,575 feet, total depth.

Estimated Daily Production

Estimated daily production for Oklahoma for the week ending November 19, and for the preceding week was as follows:

	Barrels	
	Nov. 19	Nov. 12
Allen	6,200	6,150
Billings	5,225	5,150
Burbank	7,825	7,775
South Burbank	8,850	8,775
Balance Osage	16,700	15,250
Blackwell district	4,125	4,150
Bristow-Slick	6,875	6,925
Chandler	2,025	2,000
Crescent	3,750	3,775
Cromwell	3,200	3,175
Cushing-Shamrock	10,200	10,225
Duncan district	4,175	4,225
Edmond	4,875	4,900
Fish	3,125	3,050
Fitts	38,750	37,075
Jesse	2,350	2,725
Graham-Fox	4,425	4,375
Gray	900	825
Healdton	9,775	9,550
Hewitt	3,625	3,600
Keokuk	4,175	4,075
Konawa	1,350	1,325
Lucien	8,175	8,175
Moore	4,725	4,675
Oklahoma City	98,425	105,275
Olympic	4,275	4,350
Ramsey	2,400	2,425
Sasakwa	1,350	1,325
Sholem-Alechem	2,450	2,425
Seminole district:		
Bowlegs	9,150	9,175
Carr City	3,400	3,375
Dora	5,150	5,075
Earlsboro	5,275	5,225
South Earlsboro	450	450
East Earlsboro	4,625	4,575
Little River	7,325	7,350
East Little River	875	850
Maud	675	650
Mission	1,625	1,600
Seminole	8,200	8,225
East Seminole	1,625	1,600
Searight	2,850	2,875
Total Seminole	51,225	51,025
St. Louis-Pearson	24,500	24,400
Tatums	2,625	2,500
Tonkawa-Garber-Thomas	4,075	4,050
Wewoka	2,175	2,200
Yale-Jennings	3,775	3,800
Other pools	84,250	85,000
Total Oklahoma	447,925	450,700

Garvin-Carter Counties

Mutual Investment Co. No. 2 Clark, NW cor. Section 15-3-3, Garvin County, was dry and abandoned at 2,116 feet, total depth.

Shell Petroleum Corp. No. 24 Johnson, C W half NE SE SW Section 4-4s-3w, Carter County, recently was completed for 8 bbls. of oil daily at 1,160 feet, total depth.

Roy Johnson No. 21 Daws, SE SE NW Section 6-4s-3w, Carter County, was a machine.

Coal County

S. J. Campbell and others No. 1 Cunningham, C NE SE Section 24-3n-11, Coal gas pool in eastern Coal County, recently was completed for 2,000,000 feet of gas daily at 1,402 feet, total depth.

Osage County

Barnsdall Oil Co. No. 11 Osage, CSL NE NW Section 21-23-11, Osage County, was shot and completed recently for 6 bbls. of oil daily at 2,065 feet, total depth.

Caddo County

Three producers recently were completed in the Cement field, Caddo County. English Drilling Co. No. 2 McKenna-Brogan, SE NW SE Section 11-5-9w, was bottomed at 5,005 feet, and produced 79 bbls. of oil in 24 hours.

Magnolia Petroleum Co. No. 9 McKenna, NW NW SE Section 11-5-9w, produced 297 bbls. of oil daily at 3,372 feet, total depth.

Phillips Petroleum Co. No. 1 Farwell, SW NW NW Section 35-6-10w, was bottomed at 3,436 feet and produced 110 bbls. of oil initially.

New work in Caddo County: Ray Stephens, Inc., No. 1 Heuron, SE SW NW Section 26-6-10w, cellar; same operator's No. 4 Melton, SW SE SE Section 26-6-10w, location; Magnolia Petroleum Co. No. 2 Cement-Henley, NW NW SE Section 35-6-10w, location.

Stephens County

Recent Stephens County completions included Winkler & McQueen No. 1-A Bristow, SW NW SW SE Section 18-2s-7w, abandoned at 1,426 feet, total depth.

Coline Oil Co. No. 1 Johnson, SW SE NE Section 1-2n-8w, had Simpson dense at 8,997-9,086 feet, total depth, acidized and pumped 75 bbls. of oil daily.

J. G. Beard No. 8 Willis, SE SW SW Section 23-2s-6w, was a location. Same operator's No. 9 Willis, NW SE SW Section 23-2s-6w, was running casing at 1,760 feet. G. L. Pace No. 22 Allen, SE SW NE Section 3-2s-8w, was running casing below 2,200 feet.

Charles Neal No. 1 fee, C SE NW Section 10-9-25w, Beckham County, had dug pits.

McIntosh County

Transwestern Oil Co. No. 1 Bart Hall, NE NE SE Section 27-11-15, McIntosh County, recently was reported abandoned at 500 feet, total depth.

Illinois Fields

(Continued from Page 72)

1 Dore, 330 feet from S and 990 feet from W lines of NE quarter Section 12-3s-2e, McClosky lime at 2,748-69 feet, total depth 2,801 feet.

In Randolph County, Badger Oil Co. No. 1 Schroeder, SE NW NW Section 27-6s-6w, shut down at 1,680 feet (a correction).

In White County, Sun Oil Co. No. 1 Robert Brown, C N half SW NW Section 12-4s-9e, drilling at 3,050 feet.

In Saline County, Bailey & Lucas No. 1 Logan, SE NE NE Section 21-8s-8e, small showing of oil at 1,345 feet, drilling at 1,513 feet.

New Wildcats Started

In Washington County, J. B. Overholtzer No. 1 Freeman, SW SW SW Section 10-3s-4w, is a location.

In St. Clair County, W. E. Harrison and others No. 1 Zoeller, SE NE SW Section 10-2s-7w, was drilling at 500 feet.

In Clinton County, P. J. Campbell No. 1 J. Allen, C SW SE Section 21-3n-2w, shut down at 90 feet for fishing tools.

In Fayette County, R. C. Mayes and others No. 1 Defend, NW NW NW Section 26-4n-1w, moving in material.

In Bond County, Lindsay Brothers and British American Oil Co. No. 1 Fruitiger, C SW SW SW Section 33-4n-4w, location.

In Madison County, Harry Hazlett No. 1 Wetzel, SW SW SE Section 12-5n-6w, shut down at 65 feet, after setting 15½-inch casing at 45 feet.

In Montgomery County, R. E. Johnston No. 1 Fuller, SW cor. NW Section 7-7n-2w, spudded.

In Christian County, Treleanee No. 1 Muenheimer, SW SW NW Section 31-12-2w, location.

In Edgar County, H. H. Shelton and others No. 1 Sarah Wait, C NE NE Section 16-12n-13w from first principal meridian, drilling at 35 feet; J. M. Huber No. 1 Adams, NE NE NE Section 15-14n-11w, rigging up rotary.

OHIO

LIMA, Ohio, Nov. 21.—Remarkable results were derived from the acid treatment of two Newburg sand gas wells in Cuyahoga County. In Mayfield Township, H. B. Zahniser No. 1 Emma Davis, Lot 43, had 300,000 feet of gas, natural flow, from Newburg sand at 2,795-2,860 feet. After treating with acid and cleaning out, the open flow increased to 1,300,000 feet. In the same township, the same operator's No. 1 W. C. James, Lot 44, had an open flow of 370,000 feet, naturally, from the Newburg at 2,809-60 feet. An acid treatment increased the open flow to 2,200,000 feet.

In Fairfield County, Walnut Township, Foraker & Son No. 1 E. E. Spittler, Section 36, found the Clinton sand dry at 2,347-62 feet and abandoned the test.

In Guernsey County, Washington Township, Jones & Jewell No. 1 Ross K. Bair, Section 9, had a small showing of gas in the Berea at 1,425 feet. It was drilled to 1,516 feet and abandoned.

In Athens County, Canaan Township, J. B. Bowman No. 1 Elizah Poston, Section 5, gauged 175,000

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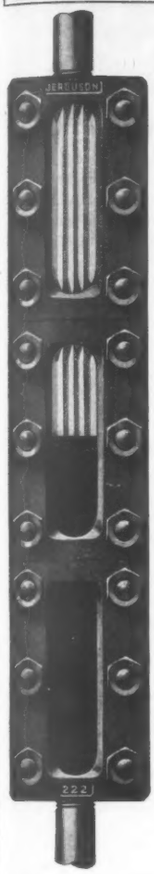

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feet of gas in the Stray sand at 550 feet. In Lodi Township, C. P. Bowman No. 1 James Rogaski, Section 11, is good for 100,000 feet of gas in the second Berea sand at 1,732-50 feet.

In Lawrence County, Union Township, Starr Gas Co. No. 1 Dorothy Franklin, Section 19, made 230,000 feet of gas in the brown shale at 2,355-2,769 feet. The well was shot with 4,000 pounds of gelatin.

In Licking County, Perry Township, Gail Earley and others No. 3 Charles Lothes, Section 7, produced 10 bbls. of oil the first 24 hours after shot from the Berea at 788-98 feet.

In Medina County, Litchfield Township, William Dempsey No. 3 Alexander McCrea, Lot 8, is a gas well gauging 1,000,000 feet from the Clinton sand at 2,581 feet.

In Morgan County, Marion Township, W. S. Harris No. 2 Bower Carpenter, Section 13, had 500,000 feet of gas in the second Cow Run at 865 feet.

In Noble County, Stock Township, Heisler Drilling Co. No. 1 Harold Mason, Section 25, was a dry hole at 1,343 feet.

In Stark County, Plain Township, S. McCloy No. 3 Edward Styer, Section 10, had 950,000 feet of gas in the Clinton at 4,599-4,630 feet.

In Wayne County, Congress Township, Alexander McCrea No. 1 Charles Aukerman, Section 13, had 320,000 feet of gas in the Newburg sand at 2,800-38 feet.

In Washington County, Fairfield Township, Totman Co. No. 1 Mary A. Totman, Section 6, is good for 275,000 feet of gas from the first Berea sand at 1,680-83 feet.

Lima Field

No wells were completed in northwestern Ohio. The test 1½ miles west of Fostoria in Hancock County, Washington Township, by the Travelers Oil Co. on the Jacob McCauley, topped the Green sand at 1,915 feet; were carrying considerable water in the hole so it will be necessary to case it off before drilling into the sand.

In Seneca County, Clinton Township, Sun Oil Co. No. 1 Jacob Zeis, Section 7, is having difficulty deepening the hole from 2,091 feet. The same company, in the same township, Section 17, drilled the No. 1 Junior O.U.A.M. 100 feet into the Trenton and shut down. No showings were found. In Pleasant Township, Jones & Keiner No. 25 S. D. Sours, Section 33, are resetting casing before drilling into the Green sand.

EASTERN KENTUCKY

ASHLAND, Ky., Nov. 21.—Three oil wells and six gas wells were completed in the Eastern Kentucky fields on the past week's reports from the fields.

Inland Gas Corp. completed No. 201 on the M. S. Layne heirs land on Toms Creek in Floyd County at a total depth of 1,550 feet, in White lime. It had an initial production of 38 bbls.

Floyd B. Birch completed No. 1 Strot Angen on Ross Creek, Ida May district, Lee County. It started at 5 bbls. of oil per day.

Kentucky Oil Producers No. 2 James Diles, on Keaton in the Keaton district of Lawrence County, is a 3-bbl. well at a total depth of 898 feet.

The United Carbon Co. completed No. 744 George W. Cornnette No. 1, on Big Branch in Knott County, in shale. The well reached a total depth of 2,743 feet with a flow of 189,000 feet of gas daily.

Francis and others No. 1 Alice Smith, in Knott County, was good for 150,000 feet of gas per day at a total depth of 2,855 feet, in shale. The well is on the Right Fork of Troublesome Creek.

Fred Williams No. 1 Stanley Heirs on Mare Creek in Floyd County was completed at a total depth of 2,710 feet, in shale, with a flow of 800,000 feet of gas daily.

Kentucky-West Virginia Gas Co. completed No. 5248 on the John Salyer land in the Coldwater Fork area of Martin County. The well was bottomed at 1,929 feet, in lime. It gauged 989,000 feet of gas per day.

James Hatcher No. 2, on the Alice Scaff farm on Mare Creek in Pike County (correct) total depth 3,056 feet, in lime and shale, started with a flow of 67,000 feet of gas from the lime and 107,000 feet of gas from shale.

The Mid City Gas Co. and E. C. Ware completed No. 1 R. H. Fields on Parks Branch in Knott County at a total depth of 1,612 feet, in Maxon sand, with a daily production of 700,000 feet of gas.

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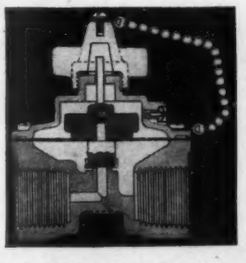

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Canadian Fields

Completions and Operations in Northwest and in Ontario

By VICTOR LAURISTON

CHATHAM, Ontario, Nov. 19.—Crude and naphtha deliveries to the Calgary refineries in October totaled 600,922 bbls., compared with 746,026 bbls. in September. The decline was due to drastice proration, the conservation board reducing the aggregate output of the field to 14,500 bbls. daily on October 20 and to 11,500 bbls. on October 28, from a previous aggregate allowable of 22,000 bbls. November, with the restriction in full operation, will show a still further decrease. Aggregate deliveries for the 10 months of 1938 were 5,004,121 bbls., compared with 2,363,743 bbls. for the entire year 1937.

Of the October deliveries, Imperial Oil took 24,695 bbls. of naphtha and 432,545 bbls. of crude, and British American Oil Co. took 169 bbls. of naphtha and 143,513 bbls. of crude.

New Conservation Measure

New conservation measures submitted to the Alberta legislature at the opening of its special session on November 15 provided for continuing in office the present conservation board, consisting of W. F. Knode, C. W. Dingman and Fred G. Cottle. The new law also declares orders of the board restricting crude and gas production final and not subject to appeal to the courts, though appeal to a supreme court judge is permitted against the board's assessments on operators for revenue purposes. Previous orders of the conservation board were challenged in the courts by Mercury Oils, Ltd., and associate interests; and an appeal by the company is pending.

Anglo-Canadian Producer

West of the proven Turner Valley field, Anglo-Canadian Oil Co. No. 1, LSD 16, Section 31-18-2w5, was finished at 8,222 feet, about 452 feet in the Madison limestone. Gas lift was used to clear the hole which started flowing by heads about 300 bbls. a day. It is being given a series of acid treatments, the early treatments bringing production up to around 500 bbls. Location is about 2 miles north and three-quarters of a mile east of Okalta No. 6 deep test, and the well extends the main producing area about one-third mile to the west.

Okalta Deep Test

Okalta Oil Co. No. 6, LSD 3, Section 30-18-2w5, finished at 10,209 feet, showed salt water in the lower lime, indicating an edge well. There was considerable crude with the water. The lower lime was cemented off, and the upper porous horizon will be acidized. The well is standing cemented, and operations have been suspended owing to a sudden blizzard.

Tests in the Lime

In west-central Turner Valley, Royalite Oil Co. No. 34, LSD 7, Section 5-19-2w5, offsetting Vulcan-Brown No. 1 producer to the south, is deepening below 7,121 feet after getting the Madison limestone at 6,919 feet. Casing was cemented at 7,039 feet.

In Section 32-18-2w5, West Turner Petroleums No. 3, LSD 6, got the Madison limestone at 7,390 feet, and has resumed after cementing casing in top of the lime.

In Section 29-18-2w5, Command Oils No. 1, LSD 14, offsetting Commoil No. 1 producer to the east, is below 7,544 feet, after getting the Madison at 7,406 feet and cementing at 7,426 feet.

West Side Drilling

In Section 5-19-2w5, west-central Turner Valley, Royalite Oil Co. No. 37, LSD 11, offsetting Vulcan-Brown No. 1 producer to the west, is below 3,349 feet.

In Section 6-19-2w5, East Crest Oil Co. No. 4, LSD 8, is resuming after setting 10¾-inch casing at 2,552 feet.

In Section 32-18-2w5, Royalite Oil Co. No. 36, LSDs 13-14, is below 3,922 feet. British Colonial Oils No. 1, LSD 5, being completed by Jack and Charles Perdue, is deepening below 1,525 feet after sidetracking lost tools.

In Section 20-18-2w5, York Oils No. 2, LSD 6, is below 444 feet. Producers Crude Corp. No. 1, LSD 11, is on top of the Madison limestone at 7,560 feet.

In Section 17-18-2w5, Extension Royalties No. 1, LSD 14, is below 6,461 feet and getting close to the Blairmore formation. Anglo-Canadian Oil Co. No. 3, LSD 10, is below 5,952 feet.

In Section 16-18-2w5, Okalta Oil Co. No. 8, LSD 6, is below 2,772 feet.

West of the proven southwest area, Inland Development Co. No. 1, LSD 16, Section 18-18-2w5, will start work as soon as Okalta No. 6 deep test is finished. Welch Contracting Co., headed by J. W. Welch, will handle the drilling. Location is about 1¼ miles south and three-quarters of a mile east of Okalta No. 6, and about the same distance west of Coronation Royalties No. 1, the nearest producer.

In the far south, D. & D. Oils No. 1, LSD 12, Section 9-18-2w5, is below 5,269 feet.

West of the proven field, Scottish Petroleums No. 1, LSD 16, Section 19-18-2w5, is in the Belly River formation below 2,493 feet.

North Turner Valley

In North Turner Valley, Home Oil Co. No. 2 Millarville, LSD 6, Section 33-20-3w5, the most northerly test in the field, is in the poker chip shales below 7,970 feet and expected to get the Madison lime around 8,000 feet. The test has proven considerably deeper than first anticipated. Location is about 12 miles northwest of the main crude area.

In Section 27-20-3w5, Royalite Oil Co. No. 35, LSD 7, is in the Kootenay formation below 5,761 feet and getting close to the Madison.

New Tests Planned

Testing a possible southwesterly extension of the proven field, Royalite Oil Co. No. 38 has been spotted in LSD 16, Section 8-18-2w5. Location is a northwesterly offset to D. & D. Oil No. 1, and about one-half mile west of National Petroleum Corp. No. 3 producer.

Royalite No. 39 has been located in LSD 3, Section 29-18-2w5, offsetting Consolidated Royalties No. 1 producer to the north.

East Side Drilling

On the Calling Valley structure, east of Turner Valley, Sentinel Oil Co. No. 1, LSD 15, Section 8-20-2w5, is in hard capping formation below 7,290 feet with about 1,000,000 feet of gas and showings of black crude.

Tests in the Foothills

On the Ram River structure, west of Rocky Mountain House, Ram River Oils No. 1, Township 38-12w5, is below 70 feet.

On the Clearwater structure, Altoba No. 1, Section 31-34-9w5, has resumed, deepening from 1,030 feet.

On the Highwood-Sinclair structure, southwest of Turner Valley, Green Valley Oils No. 1 Banner, LSD 6, Section 34-17-3w5, is in softer formation below 6,338 feet. Farther south on the same structure, Sinclair Valley Syndicate, organized by James H. Coward and associates, has leased SW quarter Section 22-16-3w5, about 2 miles west of J. & J. No. 1 location, and will start drilling shortly.

(Continued on Page 105)

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WILDCAT OPERATIONS

CALIFORNIA

IMPORTANT WELLS AND NORTHERN CALIFORNIA WILDCATS

Company, well, location and county—	S.T.R.	Depth	Status
Hancock-Bush, No. 4 Bradley, S. Maria, S. Barbara	26-10-34	4,855	pump. 750 b.d
Cole, F. E., No. 18 Paderewski, S. Maria, S. Barbara	28-10-34	3,630	sd. sh. drig.
Union Oil, No. 12 Coast, Santa Maria, Santa Barbara	26- 9-34	3,900	sd. sh. drig.
O'Donnell, J. E., No. 1 Helen, Lompoc, S. Barbara	8- 7-33	4,997	sd. sh. drig.
Douglas & Stratton, No. 1 Los Alamos, Santa Barbara	8- 8-33	6,395	deepening
Richfield Oil, No. 1 Tinquaic, Foxen, Can., S. Barbara	36- 9-32	1,570	sd. sh. drig.
Barnsdall Oil, No. 1 Pezzoni, Gato Ridge, S. Barbara	15- 8-32	4,494	br. sh. drig.
Continental Oil, No. 2 Laguna, Zaca Creek, S. Barbara	25- 8-31	5,176	sd. sh. drig.
General Pet., No. 1 Laguna, Los Olivos, S. Barbara	6- 7-30	3,615	sd. sh. drig.
Ventura Drlg., No. 1, Ojai, Ventura	10- 3-23	1,490	sd. sh. drig.
High Mesa Oil, No. 1 Butcher, Ojai, Ventura	16- 4-22	1,801	sd. sh. drig.
Claran Oil, No. 1 Hardison, Sespe, Ventura	22- 4-20	736	sd. sh. drig.
Merchants Pet., No. 8 Hillside, Sespe, Ventura	1- 4-20	1,376	sd. sh. drig.
Speik Oil, No. 2 Speik, Sespe, Ventura	33- 5-19	3,500	resume work
St. Louis Oil, No. 1 Williamson, Sespe, Ventura	1- 4-20	1,410	sd. sh. drig.
Section 20 Oil, No. 1, Sespe, Ventura	20- 5-19	2,315	rd. sd. drig.
Texas Co., No. 135 Shiells, Shiells Canyon, Ventura	4- 3-19	4,066	cleaning out
Continental Oil, No. 10 Grubb, S. Miguelito, Ventura	24- 3-24		rigging up
C. C. M. Oil, No. 6-A Hobson, Padre Canyon, Ventura	15- 3-24	856	sd. sh. drig.
C. C. M. Oil, No. 18-B Hobson, Rincon, Ventura	17- 3-24		rigging up
Tide Water A., No. 36 V.L.W., Ventura Ave., Ventura	25- 3-23	6,890	sd. sh. drig.
Tide Water A., No. 40 V.L.W., Ventura Ave., Ventura	25- 3-23	933	sd. sh. drig.
Tide Water A., No. 81 Lloyd, Ventura Ave., Ventura	27- 3-23	7,600	mill. 7,175
Tide Water A., No. 123 Lloyd, Ventura Ave., Ventura	27- 3-23	790	sd. sh. drig.
Tide Water A., No. 126 Lloyd, entura Ave., Ventura	27- 3-23	7,371	hd. sh. drig.
Tide Water A., No. 128 Lloyd, Ventura Ave., Ventura	27- 3-23	8,396	sd. sh. drig.
Tide Water A., No. 134 Lloyd, Ventura Ave., Ventura	27- 3-23	8,339	will deepen
Tide Water A., No. 7 Hartman, Ventura Ave., Ventura	??- 3-23	9,880	sd. sh. drig.
Tide Water A., No. 8 Hartman, Ventura Ave., Ventura	22- 3-23		bldg. rig.
Shell Oil, No. 96 Taylor, Ventura Ave., Ventura	28- 3-23	8,930	cleaning out
Shell Oil, No. 30 Edison, Ventura Ave., Ventura	20- 3-23	7,520	flow 108 b.d.
Shell Oil, No. 32 Edison, Ventura Ave., Ventura	21- 3-23	6,276	sd. sh. drig.
General Pet., No. 16 Barnard, Ventura Ave., Ventura	21- 3-23	5,449	cleaning out
Brit. Amer. Oil, No. 7 Bolsa, Ventura Ave., Ventura	21- 3-23	998	sd. sh. drig.
Lloyd Corp., No. 2 Dabney-Lloyd, Vent. Ave., Ventura	23- 3-23	7,303	will P.B.
Tide Water A., No. 10-R Williamson, Lost Hills, Kern	2-26-20	1,478	pump. 125 b.d.
Belridge Oil, No. 27-4, North Belridge, Kern	27-27-20	7,195	br. sh. drig.
Belridge Oil, No. 27-19, North Belridge, Kern	27-27-20	8,185	O.S. drig.
Belridge Oil, No. 27-31, North Belridge, Kern	27-27-20	8,450	flow 2,295 b.d.
Belridge Oil, No. 26-25, North Belridge, Kern	26-27-20	2,592	sd. sh. drig.
Tide Water A., No. 22, North Belridge, Kern	21-27-20	8,073	hd. sh. drig.
General Pet., No 2 St Helens, Belridge, Kern	12-28-20	1,388	sd. sh. drig.
Shell Oil, No 20 Freeman, Round Mountain, Kern	20-28-29	1,922	O.S. drig.
Brown-Saffold Drlg., No. 2 Newbery, R. Mount., Kern	32-28-29	848	sd. sh. drig.
Fuhrman, A., No. 13 Kernco, Kern River, Kern	28-28-28	635	bailing
Hast Oil, No. 5 Kern, Kern River, Kern	34-28-28	360	O.S. drig.
Reid, E. O., No. 1 Kern, Kern River, Kern	34-28-28	517	will abd.
Framac Oil, No. 3 Brown, Mount Poso, Kern	22-27-27	1,351	idle
Sierra Slope Oil, No. 1 Michaels, Mount Poso, Kern	25-26-28	965	will abd.
W. P. W. Pet., No. 1 Glide, Mount Poso, Kern	19-26-28	1,780	sd. sh. drig.
Richfield Oil, No. 1, Union Avenue, Kern	5-30-28	7,662	sd. sh. drig.
Wood-Callahan Oil, No. 3 Comm., Edison, Kern	21-30-29	3,569	cleaning out
O'Reily, F., No. 1 Berree, Edison, Kern	5-30-29	2,526	deepening
Texas Co., No. 1 Lowe, Fruitvale, Kern	7-29-27	10,122	cleaning out
West. Gulf Oil, No. 40-B, KCL, Fruitvale, Kern	22-29-27	3,030	sd. sh. drig.
Greer, P. H., No. 2 Perrel, Mountain View, Kern	9-31-29	6,325	rig to pump
Renner, G. E., No. 2 R.H.L., Sivert, Kern	27-30-30	2,050	hd. sd. drig.
Continental Oil, No. 3-A, KCL, Wasco, Kern	8-27-24	13,644	P.B. 13,170
Continental Oil, No. 1, KCL, Seaboard, Wasco, Kern	26-27-24	13,064	dry; abd.
Standard Oil, No. 8-1-B, KCL, Wasco, Kern	17-27-24	13,716	dry; abd.
Standard Oil, No. 1 Mushrush, Wasco, Kern	7-27-24	13,139	flow 6,528 b.d.
Cal. Lands, Inc., No. 1 Salisbury, Buttonwillow, Kern	7-29-24	7,391	sd. sh. drig.
Superior Oil, No. 3 Ruhl, Rio Bravo, Kern	1-29-25	11,171	sd. sh. drig.
Superior Oil, No. 1 Geissinger, Rio Bravo, Kern	35-28-25	11,480	flow 1,898 b.d.
Union Oil, No 6-34, KCL, Rio Bravo, Kern	34-28-25	11,514	flow 4,300 b.d.
Getty Oil, No. 3 Ramsey, Rio Bravo, Kern	35-28-25	11,141	sd. sh. drig.
General Pet., No. 3 Wagoner, Rio Bravo, Kern	35-28-25	8,990	sd. sh. drig.
General Pet. No. 4 Van Ness, Rio Bravo, Kern	2-29-25	11,060	sd. sh. drig.
Shell Oil, No. 58-8-A, KCL, Famosa, Kern	8-27-26	8,470	sd. sh. drig.
Standard Oil, No. 2 Fleishauer, Greeley, Kern	20-29-26	11,903	P.B. 11,590
Standard Oil, No. 11-16, KCL, Greeley, Kern	20-29-26	7,650	sd. sh. drig.
Standard Oil, No. 1 Elrich, Greeley, Kern	20-29-26	9,385	sd. sh. drig.
Superior Oil, No. 12 KCL, Greeley, Kern	3-30-26		rigging up
Continental Oil, No. 1-E, KCL, Stevens, Kern	17-30-26	8,574	redrig. 8,187
Shell Oil, No. 72-29-A, KCL, Ten Section, Kern	29-30-26	6,394	sd. sh. drig.
Shell Oil, No. 47-14-A, KCL, Canal, Kern	14-30-25	7,990	sd. sh. drig
Shell Oil, No. 87-4-B, KCL, Canal, Kern	4-30-25	9,640	sd. sh. drig.
Ohio Oil, No. 9-E, KCL, Canal, Kern	14-30-25	8,340	O.S. drig.
Standard Oil, No. 1 Rio Bravo fee, Canal, Kern	12-30-25	7,864	redrig. 4,898
Richfield Oil, No. 1, KCL, Tupman, Kern	32-30-25	8,523	looks good
Ohio Oil, No. 1-F, KCL, Coles Levee, Kern	10-31-25	9,365	flow 750 b.d.
Standard Oil, No. 223-15-D, Midway-Sunset, Kern	15-32-24	1,674	sd. sh. drig.
Fried, Julius, No. 1 Fried, Midway-Sunset, Kern	34-32-24	4,802	gr. sd. drig.
Texas Co., No. 102 Midway, Midway-Sunset, Kern	36-31-22	967	sd. sh. drig.
National Oil, No. 31, Midway, Midway-Sunset, Kern	35-32-23	890	sd. sh. drig.
Richfield Oil, No. 1, KCL, Wheeler Ridge, Kern	28-11-20	8,165	sd. sh. drig.
Tide Water A., No. 2 S.P., Tejon Ranch, Kern	15-11-19	1,483	sd. sh. drig.
Petrol Corp., No. 33-5 Reserve, Tejon Ranch, Kern	33-11-19	6,986	may abd.
Tide Water A., No. 1-F, North Coalinga, Fresno	1-19-15	6,260	sd. sh. drig.
Pet. Sec., No. 88-7-F, East Coalinga, Fresno	7-20-16	7,735	O.S. drig.
Pet. Sec., No. 37-7-F, East Coalinga, Fresno	7-20-16		bldg. rig
Pet. Sec., No. 31-18-F, East Coalinga, Fresno	18-20-16	6,969	O.S. drig.
Standard Oil, No. 1-17-F fee, East Coalinga, Fresno	17-20-16		rigging up
Superior Oil, No. 2 fee, East Coalinga, Fresno	7-20-16	5,951	sd. sh. drig.
Jarvis, L. F,, No 2 fee, West Coalinga, Fresno	14-20-14		rigging up
Dauphin Dev., No. 2 Boone, Alcalde, Fresno	30-21-14	4,158	gr. sh. drig.
Stuart Oil, No. 1 Alcalde, Alcalde, Fresno	12-21-14	880	sd. sh. drig.
Union Oil, No. 4 King, Kettleman North, Fresno	29-21-17	8,520	redrig. 7,818
Superior Oil, No. 4-H, Kettleman North, Fresno	29-21-17	8,525	will P.B.
K.N.D.A., No. 27-8-Q, Kettleman North, Kings	6-22-18	8,710	cleaning out
K.N.D.A., No. 58-8-Q, Kettleman North, Kings	8-22-18	8,393	completing
K.N.D.A., No. 6-16-Q, Kettleman North, Kings	16-22-18	2,997	sd. sh. drig.
K.N.D.A., No. 36-16-Q, Kettleman North, Kings	16-22-18	7,580	hd. sd. drig.
K.N.D.A., No. 65-20-Q, Kettleman North, Kings	20-22-18	6,990	sd. sh. drig.
K.N.D.A., No. 27-22-Q, Kettleman North, Kings	22-22-18	8,670	F. 1,400 b.d.
K.N.D.A., No. 36-22-Q, Kettleman North, Kings	22-22-18	1,993	sd. sh. drig.
Standard Oil, No. 46-13-H, Kettleman North, Kings	13-21-16	10,902	cleaning out
Standard Oil, No. 56-1-P, Kettleman North, Kings	1-22-17	3,770	sd. sh. drig.
Standard Oil, No. 21-13-P, Kettleman North, Kings	13-22-17	9,010	sd. sh. drig.
Standard Oil, No. 76-7-Q, Kettleman North, Kings	7-22-18		rigged up
Standard Oil, No. 41-17-Q, Kettleman North, Kings	17-22-18	7,798	sd. sh. drig.
Tannehill, L. B., No. 1 Reliz, King City, Monterey	36-20-8	1,450	sd. sh. drig.
Loma Grande Oil, No. 1 Edna, San Luis Obispo	28-31-13	2,125	may abd.
Epco, Inc., No. 1 Ajax, Union, San Luis Obispo	27-26-13	1,420	sd. sh. drig.
Shephard Oil, No. 3 Associates, Terra Bella, Tulare	35-22-27	955	sd. sh. drig.
Amerada Pet., No. 1 California Lands, Colusa, Colusa	34-16-1	8,152	will abd.
Richfield Oil, No. 1, Potrero Hills, Solano	10- 4-1	3,290	cleaning out

IMPORTANT WELLS AND SOUTHERN CALIFORNIA WILDCATS

Company, well, location and county—	S.T.R.	Depth	Status
Mojave Pet., No. 1 Hillside, Gorman, Los Angeles	5- 8-18	477	sd. sh. drig.
Texas Co., No. 1 Anderson, Ocean Park, Los Angeles	17- 2-15	5,790	sd. sh. drig.
Rolling Hills Pet., No. 1 Weston, P. Verdes, L. Angl.	27- 4-14	5,100	will test
Amron Oil, No. 1 Lomita, Torrance, Los Angeles	23- 4-14	4,870	sd. sh. drig.
A. & T. Oil, No. 2 fee, Torrance, Los Angeles	23- 4-14		rigging up
Alford Oil, No. 11 Lomita, Torrance, Los Angeles	23- 4-14	1,894	sd. sh. drig.
Colma Oil, No. 1 Smith, Torrance, Los Angeles	10- 4-14	4,975	sd. sh. drig.
H. D. Oil, No. 1 Lomita, Torrance, Los Angeles	23- 4-14	3,807	rigged up
Kerben Oil, No. 2 Empire, Torrance, Los Angeles	23- 4-14	4,975	cleaning out
Kirk, W. A., No. 10 Lomita, Torrance, Los Angeles	23- 4-14	3,500	will deepen
Kern Pet., No. 1 Madden, Torrance, Los Angeles	23- 4-14	3,796	dry; abd.
Kern Pet., No. 1-A Madden, Torrance, Los Angeles	23- 4-14	1,987	sd. sh. drig.
Louisiana Oil, No. 2 Lord, Torrance, Los Angeles	23- 4-14	2,183	sd. sh. drig.
Mallon, Felix, No. 2 Martner, Torrance, Los Angeles	23- 4-14	2,990	sd. sh. drig.
Medill, John, No. 4 Frenger, Torrance, Los Angeles	9- 4-14	3,595	rigged up

KEY TO ABBREVIATIONS USED IN DRILLING REPORTS

Abd., abandoned.
Acd., acidized.
B.O., barrels of oil.
B.P.D., barrels per day.
B.D., barrels daily.
B.P., back pressure.
B.R., building rig.
Br. sh., brown shale.
B.S., basic sediment.
C.&P., cellar and pits
Cd. or Crd., cored.
C.D., corrected depth.
Cg., coring.
Cmtd., cemented.
C.O., cleaning out.
Comp., completed.
Compr., compressor.
C.P., casing pressure, also cement through perforations.
Csg., casing.
D.D., drilling (or drilled) deeper.
Drlg. or Drg., drilling.
Drk. or Dk., derrick.
D.S., drill stem.
D.&A., dry and abandoned.
Fsg., fishing.
Gbo., gumbo.
G.I., gas injection.
Gr., gravity.
Gr. sd., gray sand.
Grn. sh., green shale.
Hd. sd., hard sand.
H.F.W., hole full of water.
I.P., initial production.
L., lime.
L.D.D., later drilled deeper.
Lnr., liner.
Loc., location.
M.I.M., moving in material.
M.I.R., moving in rig.
M.I.R.T., moving in rotary tools.
M.O.T., milling on tools.
O.I.H., oil in hole.
O.S., oil sand.
O.T.D., old total depth.
O.W.D.D., old well drilling deeper.
O.W.P.B., old well plugging back.
P.B., plugging or plugged back.
P.B.P., pulling or pulled big pipe.
P.L., pipe line.
P.L.O., pipe line oil.
Pmpg., pumping.
P.O.P., putting on pump.
P.P., pulled pipe.
Rd. sd., red sand.
Rd. sh., red shale.
Recmt., recemented.
Rmg., reaming.
Redrig., redrilling.
Rng., running.
R.O.G., rig on ground.
R.P., rock pressure.
R.U., rigging up.
R.U.R., rigging up rotary.
R.U.S.T., rigging up standard tools.
R.&T., rods and tubing.
S. or Sd., sand.
S.D., shut down.
Sdy. sh., sandy shale.
Sdtr. or St., sidetracking.
S.D.P.L., shut down for pipe line.
S.D.O., or S.D.W.O., shut down awaiting orders.
S.G., show gas.
Sh.&L., shale and lime.
S.I., shut in.
S.I.P., shut in, prorated.
S.L.M., steel line measurement.
S.O., show oil.
S.O.G.&W., show of oil, gas and water.
Spdg. or Spd., spudding.
S.R., straightreaming.
Stdg., standardizing (also standing).
S.W., salt water.
Swbg., swabbing.
T.A., temporarily abandoned.
Tbg., tubing.
T.D., total depth.
T.P., tubing pressure.
Tr., tract.
U.R., underreaming.
W.I.H., water in hole.
W.O., workover.
W.O.C. or W.O.C.S., waiting on cement to set.
W.P., working pressure.
W.S.O., water shutoff.
W.S.S.O.K., water shut off O.K.
W.S.R. or W.O.S.R., awaiting standard rig.
Wtr., water.

Moon Oil, No. 1 Beaver, Torrance, Los Angeles	23-	4-14	5,083	sd. sh. drlg.
Russell, T., No. 2 Clarke, Torrance, Los Angeles	23-	4-14	4,262	sd. sh. drlg.
Standard Oil, No. 1-1 Marble, Torrance, Los Angeles	15-	4-14	4,180	sd. sh. drlg.
Standard Oil, No. 2-9 Marble, Torrance, Los Angeles	22-	4-14	4,950	flow 293 b.d.
Standard Oil, No. 2-10 Marble, Torrance, Los Angeles	22-	4-14	4,965	sd. sh. drlg.
Standard Oil, No. 2-11 Marble, Torrance, Los Angeles	22-	4-14	3,170	sd. sh. drlg.
Westside Oil, No. 1 Exeter, Torrance, Los Angeles	23-	4-14	3,835	will deepen
West Basin Oil, No. 1 Eyster, Torrance, Los Angeles	23-	4-14	3,775	rigged up
C. C. M. O., No. 15, Torrance, Los Angeles	14-	4-14	3,715	mill. 3,490
C. C. M. O., No. 18, Torrance, Los Angeles	14-	4-14	4,970	sd. sh. drlg.
Bush Oil, No. 2 Gimenez, Harbor City, Los Angeles	25-	4-14	5,251	sd. sh. drlg.
Caminol Co., Ltd., No. 3-14 Lomita, Harbor City, L. A.	25-	4-14	5,293	sd. sh. drlg.
General Pet., No. 11 Poggi, Harbor City, Los Angeles	25-	4-14	3,194	sd. sh. drlg.
General Pet., No. 12 Poggi, Harbor City, L. Angeles	25-	4-14	3,990	sd. sh. drlg.
Macrate, A. N., No. 1-1 Kupfer, Harbor City, L. Angl.	25-	4-14	3,474	sd. sh. drlg.
Macrate, A. N., No. 1 Holden, Harbor City, L. Angeles	25-	4-14	4,970	sd. sh. drlg.
O'Donnell, J. L., No. 44 Oakley, Harbor City, L. Angl.	25-	4-14		rigging up
Padran Oil, No. 1 McEwen, Harbor City, L. Angeles	25-	4-14	5,304	P.B. 5,120
Richfield Oil, No. 1 Capitol, Harbor City, L. Angeles	30-	4-13	1,998	sd. sh. drlg.
Ring Oil No. 19-1, Block, Harbor City, Los Angeles	25-	4-14		bldg. rig
Ring Oil, No. 5 Hawkins, Harbor City, Los Angeles	25-	4-14	4,582	sd. sh. drlg.
Sunset Oil, No. 1 Security, Harbor City, Los Angeles	25-	4-14	5,304	flow 252 b.d.
West. Talc., No. 1 Pierce, Harbor City, Los Angeles	25-	4-14	5,325	cleaning out
Union Oil, No. 63 Callender, Dominguez, Los Angeles	32-	3-13	7,485	flow 138 b.d.
Union Oil, No. 64 Callender, Dominguez, Los Angeles	33-	3-13	5,630	flow 160 b.d.
Union Oil, No. 49 Hellman, Dominguez, Los Angeles	33-	3-13	7,800	sd. sh. drlg.
Shell Oil, No. 11 Reyes, Dominguez, Los Angeles	33-	3-13	4,223	will deepen
Richfield Oil, No. 1 Estate, Dominguez, Los Angeles	2-	4-13	3,005	sd. sh. drlg.
Fairfield, F. E., No. 1 Abel, Rosecrans, Los Angeles	19-	3-13	7,399	redrlg. 5,843
Bankline Oil, No. 1 Kirby, Rosecrans, Los Angeles	20-	3-13	7,655	redrlg. 6,350
Barnsdall Oil, No. 10 Rosecrans, Rosecrans, L. Angl.	20-	3-13	8,750	sd. sh. drlg.
Barnsdall Oil, No. 11 Rosecrans, Rosecrans, L. Angl.	20-	3-13	7,745	flow 1,050 b.d.
Union Oil, No. 27 Rosecrans, Rosecrans, Los Angeles	19-	3-13	898	sd. sh. drlg.
Universal Cons'd., No. 6 Trust, Rosecrans, L. Angeles	18-	3-13	7,976	P.B. 7,565
Republic Pet., No. 1 Trust, Rosecrans, L. Angeles	18-	3-13	7,571	cmtd. 7,294
Superior Oil, No. 12 Maxwell, Rosecrans, L. Angeles	19-	3-13	7,298	sd. sh. drlg.
Hydrocarbon Prod. Inc., No. 1 Gardena, Rose., L. A	20-	3-13	2,298	sd. sh. drlg.
Royalty Ser., No. 2 Gordon, Rosecrans, Los Angeles	19-	3-13	7,635	flow 770 b.d.
West. Gulf Oil, No. 1 Bagg, Rosecrans, Los Angeles	17-	3-13	6,030	sd. sh. drlg.
Basin Oil, No. 2 Club, Potrero, Los Angeles	34-	2-14	6,154	sd. sh. drlg.
Barnsdall Oil, No. 4 R.S.F., Newhall, Los Angeles	26-	4-17	6,467	O. S. drlg.
Continental Oil, No. 1 R.S.F., Newhall, Los Angeles	20-	4-17	1,740	sd. sh. drlg.
Newhall Associates, No. 4 Needham, Newhall, L. Ang.	13-	3-16	3,504	mill. 1,758
Mojave Pet., No. 2 Jennings, Newhall, Los Angeles	33-	5-14	200	sd. sh. drlg.
Royal Lands, No. 1 Ramona, Castaic, Los Angeles	8-	4-17	1,220	sd. sh. drlg.
General Pet., No. 28 Harbor, Wilmington, L. Angeles	2-	5-13	3,900	O. S. drlg.
General Pet., No. 31 Harbor, Wilmington, L. Angeles	2-	5-13	2,582	sd. sh. drlg.
General Pet., No. 17 S.P., Wilmington, Los Angeles	2-	5-13	4,103	flow 1,420 b.d.
Master Pet., No. 4 Chuck, Wilmington, Los Angeles	33-	4-13	3,442	redrlg. 3,020
Bond Pet., No. 1 Mutual, Wilmington, Los Angeles	35-	4-13	2,830	sd. sh. drlg.
Dunlap, D. D., No. 4-W, Wilmington, Los Angeles	32-	4-13	2,550	sd. sh. drlg.
Getty Oil, No. 4-W, Wilmington, Los Angeles	33-	4-13	4,677	sd. sh. drlg.
Hollywood Oil, No. 5 Baxter, Wilmington, L. Angeles	33-	4-13	1,574	sd. sh. drlg.
Pacific West. Oil, No. 1 Comm., Wilmington, L. Angl.	33-	4-13	5,690	flow 350 b.d.
Union Pacific R. R., No. 86, Wilmington, Los Angeles	3-	5-13	3,542	O.S. drlg.
Union Pacific R. R., No. 93, Wilmington, Los Angeles	4-	5-13	4,093	O.S. drlg.
Union Pacific R. R., No. 94, Wilmington, Los Angeles	4-	5-13	3,471	O.S. drlg.
Union Pacific R. R., No. 2-EU, Wilmington, Ls. Angeles	34-	4-13	2,855	O.S. drlg.
Universal Cons'd., No. 3 Newport, Wilming., L. Angl.	2-	5-13	4,100	O.S. drlg.
Universal Cons'd., No. 6 Newport, Wilming., L. Angl.	2-	5-13		rigging up
Grady, R. T., No. 1 Associates, San Pedro, L. Angeles	23-	5-14		rigging up
Hogan Pet., No. 2 Burkhard, San Pedro, Los Angeles	6-	5-13		rigging up
St. Helens Pet., No. 29 Monterey, Montebello, L. Angl.	2-	2-12	6,590	sd. sh. drlg.
St. Helens Pet., No. 2 Taylor, Montebello, L. Angeles	2-	2-12	6,250	hd. sh. drlg.
Union Oil, No. 3 Howard, Montebello, Los Angeles	2-	2-12	5,465	flow 230 b.d.
Herley-Kelly, Inc., No. 1 Masser, Montebello, L. Angl.	2-	2-12	6,690	flow 1,500 b.d.
Mont. Res. Oil, No. 1 M.L.&W., Montebello, L. Angeles	2-	2-12	6,360	O.S.
Hathaway Oil, No. 1 Dore, Montebello, Los Angeles	11-	2-12	7,181	testing
Texas Co., No. 6 Baldwin, Santa Fe Springs, L. Angl.	6-	3-11		rigging up
Caminol Co., Ltd., No. 2-10, North Long Beach, L. A	13-	4-13	6,930	sd. sh. drlg.
Johnston Drlg., No. 36, North Long Beach, L. Angeles	13-	4-13	3,772	sd. sh. drlg.
Massey & Asso., No. 1 Taylor, Long Beach, Los Angl.	19-	4-12	4,040	redrlg. 3,950
De Soto Oil, No. 1 Signal, Long Beach, Los Angeles	30-	4-12	9,907	sd. sh. drlg.
Brea Canyon Oil, No. 49 Brea, Brea Canyon, Orange	2-	3-10	1,590	hd. sd. drlg.
Shell Oil, No. 20 Orange, Brea Canyon, Orange	2-	3-10	5,171	sd. sh. drlg.
Battersby, J. M., No. 1 Associates, Carmenita, Orange	21-	3-11	8,820	gr. sh. drlg.
Graham-Loftus Oil, No. 2 Perkins, E. Coyote, Orange	13-	3-10	3,230	sd. sh. drlg.
Bartholomae Oil, No. 7 Sterns, East Coyote, Orange	22-	3-10	2,941	sd. sh. drlg.
Shell Oil, No. 1 Herriman, Richfield, Orange	22-	3-9	2,572	sd. sh. drlg.
McKeon, John, No. 1 New Fields, Sun. Beach, Orange	16-	5-11	4,180	idle
J. E. F. Oil, No. 1 Bruce, Huntington Beach, Orange	36-	5-11	3,950	sd. sh. drlg.
Southwest Expl., No. 1 State, Hunting. Beach, Orange	10-	6-11	3,980	O.S. drlg.
Southwest Expl., No. 2 State, Hunting. Beach, Orange	10-	6-11	3,720	O.S. drlg.
Apex Pet., No. 1 Harper, Huntington Beach, Orange	36-	5-11	4,860	sd. sh. drlg.
Shell Oil, No. 1 Irvine, Del Mar, Orange	6-	7-9	297	sd. sh. drlg.
A. V. Oil, No. 1 Newport, Costa Mesa, Orange	16-	6-10	4,751	cleaning out
So. Counties Oil, No. 1 Serrano, San Bernardino	22-	2-8	2,417	idle
Dauphin Dev., No. 1 Irwin, Ponto, San Diego	16-12-4		620	sd. sh. drlg.

KANSAS

Week Ending November 19 (Descriptions are East unless marked otherwise)

Barton County

C. L. Carlock and Atlantic Ref. Co. No. 1 Demel, NE NW Sec. 30-17-13w. Rng. csg. 3,127 ft.
Long & Johnson No. 1 Eveleigh, SW SW NE Sec. 3-18-14w. Bad hole 3,012 ft.
I. W. Murfin No. 1 Birzer, NE SW Sec. 21-19-11w. S.D. 575 ft.
Newton & Clyde Pulse No. 1 Hagen, SW Sec. 20-20-11w. W.O.C. 2,020 ft.
J. C. Shaffer, Inc., No. 1 Addie, SW NW Sec. 28-16-14w. Lansing 3,188 ft.; Arb. 3,441 ft.; T.D. 3,469 ft.; D.&A.
Sinclair-Prairie No. 1 Prusa, SE SE SE Sec. 20-16-11w. W.O.C. 371 ft.
Virginia Drlg. Co. No. 1 Clawson, SW NW Sec. 17-20-11w. W.O.C. 130 ft.

Butler County

Soloman & Alexander No. 1 Sawyer, SW NW SW Sec. 2-28-7. S.D. 183 ft.; abd.
Stewart & Gross No. 1-A Semisch, NW SE SW Sec. 34-27-7. Pay 2,788-2,800 ft.; T.D.

Cowley County

Ben Gralapp et al No. 1-A Clark, NW NW NE Sec. 11-31-3e. S.D. 3,248 ft.
Ben Gralapp and Continental No. 1 Community, NW Sec. 23-32-5. Bart. sd. 2,992 ft.; Arb. 3,549-57 ft., T.D.; H.F.W.; P.B. 2,877 ft.; 5,000,000 ft. gas; comp.

Dickinson County

Franks et al No. 1 Huffman, NW SW Sec. 11-13-1. Rng. 10-in. 1,177 ft.

Ellis County

Cities Service No. 1 Hall "D," C NW Sec. 2-12-17w. W.O.C. 1,132 ft.
Darby Pet. No. 1 Peavey, NW NE Sec. 24-11-18w. W.O.C. 1,211 ft.

Grant County

Panhandle-Eastern No. 1 Parsons, C N½ SW Sec. 25-30-37w. R.U.S.T. 2,475 ft.
Panhandle-Eastern No. 1 Towler, C SE Sec. 20-30-37w. T.D. 2,793 ft.; 14,000,000 ft. gas; comp.

Greenwood County

Z. Dunlap et al No. 1 Warren, NW NW SW Sec. 4-28-10. S.D. 2,155 ft.
Russell B. Reed No. 1 Shell, NW SE Sec. 17-28-11e. Drlg. 450 ft.

Harvey County

Derby Oil and Gary Drlg. Co. No. 1 Jones, CEL NE NW Sec. 7-22-1w. R. U.S.T.; drld. by pig. to 3,295 ft.
Lanahan Drlg. No. 1 Lagree, SE SE Sec. 4-23-3w. T.D. 280 ft.; S.D.

Kingman County

Bunte Bros. No. 1 Shepard, SE SE SE Sec. 10-27-10w. T.D. 4,529 ft.; P.B. 4086 ft.; acd. and p. 81 B.O. and 25 B. W. in 20 hrs.
Duwe & Farris No. 1 Himminan, NE NW SW Sec. 12-30-9w. Drlg. 1,160 ft.

McPherson County

Marylyn Oil No. 1 Dixon, NW NE NW Sec. 7-19-2w. W.O.C. 2,770 ft.
Western Kans. O. & R. Co. No. 1 Union, NW NE SW Sec. 18-17-1w. T.D. 2,986 ft.; est. 80 B.O.P.D.

Marion County

Cox & McGinnis and Saco Oil Co. No. 1 Jolliffe, C S½ SW SE Sec. 2-22-5. T.D. 1,610 ft.; C.O.
Johnson et al No. 1-A Miltz, SW SW SW Sec. 24-17-4. T.D. 2,275 ft.; S.D.

Mead County

Cragin, Reeuscher & Turner No. 1 Adams, NW NW SE Sec. 22-34-30w. T.D. 200 ft.; R.U.R.
Pacific Midwest Oil No. 1 Rexford, NE SE SW Sec. 8-30-29w. S.D. 1,435 ft.

Ness County

C. L. Carlock and J. C. Shaffer No. 1 Smith, C SW SE Sec. 11-17-25w. Fsg. 4,011 ft.

Ottawa County

Babcock Oil No. 1 Copeman, NW NW Sec. 18-10-2w. Drlg. 2,775 ft.

Pottawatomie County

I. A. Turner No. 1 Unshide, C NE NW Sec. 32-8-9. H.F.W.; T.D. 1,985 ft.; D.&A.

Pratt County

Champlin Ref. Co. No. 1 Elliott, SW NE Sec. 26-27-14w. Fsg. 4,857 ft.

Reno County

H. B. Garden No. 1 Strickler, NW Sec. 17-22-6w. T.D. 4,035 ft.; D.&A.

Rice County

Climax Oil Co. No. 1 Malone, SE SW NW Sec. 36-20-10w. Arb. 3,368-3,400 ft.; T.D.; D.&A.
Spurrier & Bruce No. 1 Cary, NE NW NW Sec. 30-18-8w. O.W.D.D.; O.T.D. 1,530 ft.; S.D. 1,680 ft.

Rooks County

Phillips Pet. Co. No. 1 Tanzey, C NW SW Sec. 25-8-18w. Arb. 3,418-3,423 ft., R.U.S.T. 3,423 ft.
Producers No. 1 Ham (O.W.D.D.), SW NW Sec. 25-7-19w. O.T.D. 1,800 ft.; U.R. 2,355 ft.

Russell County

K. F. Nelson No. 1 Polcyn, SW Sec. 31-13-15w. Drlg. 993 feet.
Phil-Han No. 1 Weimeister, SW Sec. 18-14-13w. T.D. 2,815 ft.; S.D.
W. I. Southern No. 1 Sellens, SW cor. Sec. 22-15-13w. Arb. 3,352-54 ft.; R.U. S.T. 3,354 ft.
Western Kansas O. & R. Co. No. 1 Michel, CEL SW Sec. 1-15-14w. Drlg. 2,658 ft.
Yankey & Stearnes No. 1 Krog, NW SE NW Sec. 7-15-13w. T.D. 3,048 ft.; W. O.C.

Saline County

Central States Oil Co. No. 1 Crawford, NW SW NE Sec. 26-13-3w. Drlg. 1,100 ft.

Sedgwick County

D. M. Crowe No. 1 Murphy, SW SE Sec. 34-29-1w. S.O. 3,500 ft.; Arb. 3,920-25 ft., T.D.; D.&A.
Frank Hudson et al No. 1 Fulton, NE SE Sec. 35-28-1e. U.R. 2,356 ft.

Stafford County

Stanolind O. & G. Co. No. 1 Curtis, SE cor. Sec. 31-21-12w. Viola 3,544 ft.; Arb. 3,638 ft.; R.U.S.T. 3,640 ft.

Sumner County

Cameron & Spencer No. 1 Frey, NW cor. Sec. 5-30-1e. U.R. 2,875 ft.
Earl Henderson No. 1 King, NE NE NE Sec. 22-31-4. Drlg. 700 ft.

Thomas County

Ramsey Pet. Co. and John Mabee No. 1 Ryan, C NE SE Sec. 27-8-32w. Miss. 4,644 ft.; Arb. 5,170 ft.; T.D. 5,312 ft.; D.&A.

Wabaunsee County

Fowler & Tague et al No. 1 Aye, NW SW NW Sec. 10-12-8. S.D. 300 ft.

Woodson County

Monarch Royalty No. 1 Central Life Ins., SE NW NW Sec. 29-26-14. Drlg. 1,175 ft.
M. J. Trott No. 1 Abbott, NW NE NE Sec. 21-25-14e. Drlg. 1,325 ft.

OKLAHOMA

Week Ending November 19

NORTHERN OKLAHOMA

Caddo County

Texas Co. No. 1 Smith, C NE NW Sec. 2-5-12w. T.D. 2,556 ft.; S.D.O.

Cleveland County

Big Chief and Gulf No. 1 Stratiger, NW NW SW Sec. 25-9-2w. T.D. 7,179 ft.; drlg. cmt.
Harper, Turner et al No. 1 Taylor, SE NE NW Sec. 23-8-2w. Rig.
Nels-Burrton No. 1 Hirsch, NW NW NE Sec. 17-9-2w. O.W.P.B.; O.T.D. 7,692 ft.; bailing; to perf.

Garfield County

Champlin Ref. Co. No. 1 Boehm, SW SW NE Sec. 4-24-8w, Viola 6,595 ft.; dolo. 6,625 ft.; 1st Wilcox 6,658 ft.; dry; 2nd Wilcox 6,690 ft.; F. 717 B.O. in 24 hrs. and est. 3,000,000 ft. gas.

Garvin County

H. R. Hollenbach et al No. 1 Butterly, NE NE SE Sec. 22-1n-1e. 3,218,000 ft. gas; drlg. 3,205 ft.; S.D.; repairs.

Grady County

Carter Oil Co. et al No. 1 Smith C-58, C SE SW Sec. 26-5-8w. Drlg. sh. 5,205 ft.

Greer County

S. T. Moore No. 1 Graumann, NE NW NW Sec. 11-5-21w. T.D. 550 ft.; S.D.O.

Hughes County

City of Holdenville No. 1 Fairgrounds, SE SE SE Sec. 13-7-8. S.D. at 1,200 ft.
Homer Doup et al No. 1 Bond, NE NE SW Sec. 7-7-9. S.D. 3,098 ft.
639 ft.; est. 25,000,000 ft. gas; cmtg. 4,905-20 ft.
Phillips Pet. Co. No. 1 Mandler, SE SW SW Sec. 1-6-10. D.S.T. 4,321 ft.

Jackson County

Lippert No. 1 Howard, NE SW NW Sec 10-3-19w. O.W.D.D. T.D. 1,510 ft.; S.D.

Kay County

Atlantic O. & R. Co. No. 1 Watson, SE SE NW Sec. 28-28-1w. T.D. 3,701 ft.; open and rec. wtr.; S.D.O.
Louis Blosser No. 1 Rudolph, NE NE SW Sec. 27-29-1w. T.D. 3,653 ft.; D. &A.
Crawford No. 1 Boehl, SE SE NW Sec. 34-27-2w. Drlg. 610 ft.
E. W. Hamilton No. 1 Riddle, NW cor. Sec. 3-26-4. Drlg. 2,300 ft.
Gus Little No. 1 Prunty, NE NE SW Sec. 33-28-3. S.D. 326 ft.
Tide Water Oil Co. No. 1 Hockman, NW NW NE Sec. 19-28-1. Wlx. 3,288 ft.; Arb. 3,421 ft.; P.B. to 3,330 ft.; bailed down and filled 500 ft. wtr.

Kingfisher County

Burton Pet. Corp. No. 1 Zerger, C SE SW Sec. 5-18-6w. S.D. at 3,510 ft.; lost cones.

Kiowa County

Crawford & Zelliff No. 1 Kimray, SW SW NW Sec. 36-5-18w. S.D. 354 ft.
R. L. Emerson No. 1 Handcock, SE SE NE Sec. 26-6-15w. Rng. csg. 484 ft.
Hughes & Reese No. 1 Fultz, SE SE SE Sec. 10-6-18w. T.D. 1,238 ft.; W.O.C.

Lincoln County

Summit Drlg. Co. No. 1 Gordon, NE NE NE Sec. 27-17-2. Cg. 4,816-35 ft.; R.U. S.T. to D.D.

Noble County

H. R. Hollenbach No. 1 Mathews, C SW NW Sec. 9-20-1. Drlg. 5,074 ft.
Phillips Pet. Co. No. 1-A Robertson, NW NE SW Sec. 29-24-1w. Drlg. 3,780 ft.

Okfuskee County

Lease Inv. Co. No. 1 fee, SE SW SE Sec. 21-13-10. Drlg. 3,548 ft.
Mead Prod. Co. No. 1 Pine, SW SW NW Sec. 14-12-11. Drlg. 2,660 ft.

Okmulgee County

Jim Wise Drlg. Co. No. 1 Morrow, SW NW NE Sec. 16-15-13. S.D.; wtr. 150 ft.

Pawnee County

Ed Kelly No. 1 Hill, SW SW SE Sec. 1-21-5. Drlg. 990 ft.

Payne County

Continental Oil Co. No. 1 Donahoe, NW SW Sec. 16-18-2w. 1st Wlx. 5,931 ft.; 2nd 6,007 ft.; T.D. 6,023 ft.; S.D.O.
Roy Starr No. 1 McKenzie, SW SW NE Sec. 13-18-3. Drlg. 980 ft.

Pittsburg County

J. Campbell No. 1 Featherstone, C N½ NW SW Sec. 19-3-12. T.D. 1,160 ft.; 5,000,000 ft. gas; comp.

Supreme Oil Corp. No. 1 Hickey, NW SW NW Sec. 4-2-15. T.D. 1,040 ft.; S.D.

Supreme Oil Corp. No. 1 Stevenson, SW SW SE Sec. 27-3-14. T.D. 1,300 ft., M.I. rotary.

Pontotoc County

Jack Lynch et al No. 1-A Parker, SW SW SE Sec. 17-4-8. T.D. 4,572 ft.; P.B 4,490 ft.; rip in csg.; P.B. 4,090 ft. S.D.

H. Z. Moore No. 1 Payne, SE NW SE Sec. 16-4-4. T.D. 997 ft.; S.S.O.; S.D.

Union Dev. Co. No. 1-A Abbott, SW NW NE Sec. 34-3-6. T.D. 2,620 ft.; S.D.

Pottawatomie County

Hall & Briscoe No. 1 Merkle, NW NW SE Sec. 32-8-5. 1st Wlx. 4,385 ft.; 2nd 4,460 ft.; T.D. 4,476 ft.; P.B. 4,386 ft.; to P.O.P.

Seminole County

Lesslie Rogers No. 1 Kidd, NE SW SE Sec. 33-10-8. T.D. 200 ft.; S.D.

Simpson-Roodhouse No. 1 Watson, SE NE SW Sec. 11-6-5. T.D. 3,187 ft.; D. &A.

Texas County

Republic Nat. Gas Co. No. 1 Judd, CSL SW Sec. 24-6n-15ecm. T.D. 2,870 ft.; gas 7,100,000 ft.

Washita County

Continental Oil Co. No. 1 Proctor, C NW Sec. 28-10-20w. Drlg. 9,432 ft.

L. B. McWhirter No. 1 fee, NW SW SW Sec. 34-8-19w. S.D. 2,184 ft.

SOUTHERN OKLAHOMA

Carter County

Pure Oil Co. No. 1 Noble, NE SE Sec. 35-3s-1e. Drlg. 2,140 ft.

Choctaw County

Clyde Ross et al No. 1 Hardy, SE SE NW Sec. 21-7s-15. Drlg. sdy. L. 1,300 ft.

Cotton County

Jim Turner No. 5 Collins, C NE NE Sec. 18-4s-10w. Drlg. 500 ft.

Tillman County

Smith No. 2 Hammel, NE NW NW sec. 6-5s-15w. T.D. 2,380 ft.; recvd. D.P and S.D.

ARKANSAS

Calhoun County

Samuel S. Alexander No. 1 Smythe, C NE NE Sec. 7-11-14. Drlg. hd. sh., stks. sd. 3,346 ft.

C. E. Murdock No. 1 Southern Kraft Corp., SE cor. NW NW sec. 17-14-13. Top Nac. 2,372 ft.; top Tokio 2,920 ft. S.D. 3,291 ft.

Columbia County

Atlantic Ref. Co. No. 1 Garrett, C NW SW Sec. 13-17-20. Cd. T.L. 7,519 ft.; D.S.T. 2,800 ft.; oil; 200 ft. brksh. wtr. top por. L. 7,548 ft.; D.S.T. 7,604-22 ft.; ¼-in. bttm. ck.; 35 lbs. W.P. 11 min.; set 7-in. csg.; T.D. 7,627 ft.; 7-in. csg. 7,626 ft.; perf. 7,580-7,622 ft.; tstd. 139½ B.O. first; ½-in. ck.; T.P. 1,100 lbs.

Pet. Finance Co. No. 1 Barnett, C NW SE Sec. 14-17-20. 16-in. 135 ft.; drlg. sh. 1,650 ft.

Pet. Finance Co. No. 1 Garrett, C SW SW Sec. 13-17-20. M.I. rig.

Southwood Oil Co., Inc., No. 1 L. Garrett, C SW SW Sec. 13-17-20. R.U.

Standard Oil Co. of La. No. 1 E. D. Harris, NW cor. NW SE Sec. 15-7-19. Cd. 6,323-39 ft.; full rec. dry; stk. D. S. while going in hole, 6,760 ft.; T.D., hd. sd. 7,193 ft.

Standard Oil Co. of La. No. 4 McKean, SW cor. NW SW Sec. 8-16-22. Set 9⅝-in. csg. 2,063 ft.; fsg. D.S. 5,956 ft., T.D.

Standard Oil Co. of La. No. 1 Minnie Harris, NE cor. NE SW Sec. 15-17-19. Drk.

Tide Water Seaboard No. 1 Beene, C SE NW Sec. 15-18-19. Top Cotton Valley 5,887 ft.; cd. 7,000-08 ft.; rec. 4 ft. sd. &sh.; stain oil; cd. 7,020-32 ft.; rec. 1 ft. wtr. sd. and 6 jts. gr. sd.&sh.; no show; cd. sd. S.O. 7.305-10 ft.; rmg. down to make D.S.T. 7,310 ft.

Hot Springs County

John H. James No. 1 Sturgess Lbr. Co., SW cor. SW SE Sec. 24-6-18. M.I. rig

Little River County

Barbee et al No. 1 Ada Mills, SE cor. SW NW Sec. 18-12-29. R.U.

C. & M. Drlg. Co. No. 1 Strawn, SW cor. SE Sec. 20-10-32. Drlg. 215 ft.

Harford Oil Corp. No. 1 Pinning, C NE NE SW Sec. 6-13-30. Fsg. D.S. 1,825 ft.

Herzer & Smith No. 1 Waldrop, SE cor. NW Sec. 4-13-31. Top anhy. 2,403 ft.; b. anhy. 2,470 ft.; cd. sd.; no show 2,-707-19 ft. and S.W. sd. 2,719-24 ft.; D.S.T. 3,148-66 ft.; rec. 22 ft. drlg. mud; no show; T.D. 3,431 ft.; D.&A.

Joe G. Straham et al No. 2 Dierks Lbr. Co. Top L. 2,425 ft.; wshg. to bttm. 3,354 ft.; arng. core.

Lonoke County

Cabot Drlg. Club, Inc., No. 1 Benson Townsite, Sec. 18-4n-9w. Set 4½-in. csg. on pkr. 1,540 ft.; S.D. 2,406 ft.

J. W. Eddington No. 1 Anderson. S.D. 900 ft.

Miller County—Rodessa

Gulf Ref. Co. No. 5 Johnson, SW cor. Sec. 29-15-15. R.U.

F. W. Martin & Co. No. 1 Watts, SE cor. SW NE Sec. 2-20-26. Top anhy. 5,410 ft.; T.M.A. 5,675 ft.; top Hill 6,046 ft.; top Gloyd 6,176 ft.; por. L. 6,222-50 ft.; ran 5-in. csg.; T.D. 6,252 ft.; flwd. 300 B.O. and 75 B. S.W. in 17 hrs.; ½-in. ck.; T.P. 125 lbs.; C.P. 1,250 lbs.; 5-in. csg. 6,219 ft.; P.B. 6,210 ft.; drld. cmt. out to 6,235 ft.; tbg. set on pkr.; prod. in 14 hrs., 215 B.O. and 60 B. S.W.; 1-in. tbg. ck.

Mrs. S. O. Thompson No. 1 Gen. Am. Life Ins. Co., SE cor. SE SW Sec. 20-14-26. Cd. 3,657 ft.; slightly por. sdy. L.; arng. make D.S.T. 3,695 ft.

Mississippi County

Benedum & Trees Oil Co. No. 1 Mack. 330 ft. SW cor. NW SW Sec. 2-15n-12e. Top Nac. 2,160 ft.; set 7-in. csg. 2,897 ft.; drlg. sdy. sh. 3,076 ft.

Nevada County

J. E. Spears, Tr., No. 1 P. T. Phillips, SW cor. SE SW Sec. 18-14-21. 10-in. 40 ft.; S.D.; repairs.

Texas Canadian Oil Corp. No. 2 Stocks, NW SW SE Sec. 9-15-22. Cor. T.D. 1,-395 ft.; 7-in. 1,340 ft.; perf. csg. 1,395 ft.; recmtd. csg. and ripped csg. 1,209-15 ft.; W.O.S.R.; 250 ft. O.I.H.; T. Nac. 1,202 ft.

O. F. Whittaker No. 1 Edwards, Sec. 3-15-20. Cd. brkn. sd.; S.O. 2,030-2,155 ft. set 6¼-in. csg. 2,030 ft.; W.O.S.R.; 60 ft. F.I.H. 2,155 ft.

Ouachita County

Gulf Ref. Co. No. 5 Johnson, SW cor. SE SW Sec. 29-15-15. 6⅝-in. csg. 1,973 ft.; drld. out to 2,030 ft.; pmpg. est. 600 B.P.D. S.W.; slight rainbow oil; T.D. 1,983 ft.; P.B. 2,012 ft.; W.O.S.R.

Pike County

Bruce Wallace No. 1 Tilyeu, NE cor. SE Sec. 26-8s-24w. S.D.; W.O. 392 ft.

Pulaski County

A. L. Kitselman No. 2 A. L. Kitselman, Jr., SE SE SW Sec. 2-1s-13e. Drlg. hd. bl. slate 3,816 ft.

Union County—Schuler

Delta Drlg. Co. No. 1 Powledge, SW cor. NW NW Sec. 21-18-17. Top Jones sd. 7,599 ft.; cd. to 7,651 ft. and drld. to 7,686 ft.; 7-in. csg. 7,678 ft.; perf. csg. 7,686 ft.

Fohs Oil Co. No. 1 Craig, C SE NE Sec. 5-18-14. Top Nac. 2,203 ft.; D.S.T. 2-min.; ⅜-in. cks.; rec. 40 ft. drlg. fluid; set 10¾-in. csg. 2,378 ft.; cd. top Tr. Pk. 3,068 ft.; top Crain sd. 3,158 ft.; drlg. sdy. sh. 4,938 ft.

Hollywood & McFarlane No. 6 Scott-Murphy, NW cor. E½ SE NW Sec. 9-16-15. M.I. rig.

E. M. Jones No. 3-B Murphy Ld. Co., SW cor. SE NE Sec. 13-18-18. 10¾-in. csg. 2,095 ft.

Lion Oil Ref. Co. No. 1 Banks, NW cor. SW SE Sec. 12-18-18. Set 10¾-in. csg. 1,920 ft.; drlg. rd. sdy. sh. 6,611 ft.

Lion Oil Ref. Co. No. 1 Cecil, SE cor., Lot 6, NW Sec. 7-18-17. 16-in. 125 ft.; drlg. rd. sh. 5,952 ft.

Lion Oil Ref. Co. No. 3 Dee, SW NW Sec. 17-18-17. Set 10¾-in. csg. 1,884 ft.; drlg. rd. sdy. sh. 7,020 ft.

Lion Oil Ref. Co. No. 9 Hardy-Murphy, NW cor. NE NW Sec. 9-16-15. Drlg. 1,592 ft.

Lion Oil Ref. Co. No. 7-B Hays, O.W. W.O., Sec. 3-16-15. Formerly comp. 2,-121-24 ft.; T.D. 2,325 ft.; fsg. csg.

Lion Oil Ref. Co. No. 5 Marcus, Sec. 18-18-17. Top Jones 7,511 ft.; cd. top L. 7,607 ft.; T.D. 7,725 ft.; D.S. stk. 7,-713 ft.; fsg. for 3,500 ft. D.S. after backing off 4,200 ft.; cutting out D.S. 7,725 ft.

Lion Oil Ref. Co. No. 6 Marine, NW cor. SW NW Sec. 18-17-17. Drlg. rd. sdy. sh. 6,816 ft.

Lion Oil Ref. Co. No. 7 Mayfield, C Lot 2, NW Sec. 18-18-17. Drlg. rd.&gr. sh. 4,400 ft.

Lion Oil Ref. Co. No. 7-A Morgan, C S½ Lot 7, SW Sec. 18-18-17. Top Jones sd. 7,539 ft.; top L. 7,644 ft.; 7-in. csg. 7,-698 ft.; T.D. 7,710 ft.; perf.

Lion Oil Ref. Co. No. 3 Nelson, C S½, Lot 6, SW Sec. 18-18-17. Top Jones sd. 7,547 ft.; cd. to 7,634 ft.; 7-in. csg. 7,-650 ft.; T.D. 7,660 ft.

Lion Oil Ref. Co. No. 4 Nelson, SW cor. Lot 5, SW Sec. 18-18-17. 10¾-in. csg. 1,940 ft.; drlg. rd. sh. 5,950 ft.

Marine Oil Co. No. 3 Calloway, SE cor. S½ Lot 4, NW Sec. 18-18-17. Drlg. rd. &gr. sh. 5,480 ft.

C. H. Murphy No. 1 fee, SE cor. SW NE Sec. 13-18-18. Drlg. sdy. sh. 7,052 ft.

Ohio Oil Co. No. 6 Furlough, SE cor. SE NE Sec. 12-17-14. 8⅝-in. csg. 189 ft.

Phillips Pet. Co. No. 1 Edwards, SW NE Sec. 17-18-17. 7-in. csg. 7,704 ft.; perf. 7,628-35 ft.; would not flow and reperf. 7,626-35 ft.; T.D. 7,740 ft.; reperf. 7,624-35 ft.; washed and swbd.; would not flow; S.I.; W.O.; C.P. 400 lbs.

Phillips Pet. Co. No. 5 Sewell, NW cor. Lot 5, SW Sec. 7-18-17. Top Jones sd. 7,553 ft.; oolitic L. 7,657-7,706 ft.; drld. to T.D. 7,800 ft.; comp.; 377 B.P.D.; cks. ¼-24/64-in.; T.P. 900 lbs.; C.P. 600 lbs.; 7-in. csg. 7,773 ft.; perf. 7,-667-72 ft.

Sam M. Richardson et al No. 1 B. Francis et al, NW cor. NW SW Sec. 7-17 13. Drlg. 400 ft.

Union County—Other

E. G. Bradham No. 1 Raulston, C Sec. 12-17-14. Cd. 2,980-90 ft.; sdy. sh.; S.O.; cd. 2,996-3,003 ft.; no rec.; cd. 3,003-05 ft.; rec. 6-in. por. sat. sd.; D.S.T. 2,971-99 ft.; 13 min.; ¼-in. bottm. ck.; 125 lbs. W.P.; flwd. 7 min.; will set csg.; T.D. 3,005 ft.; 7-in. csg. 2,972 ft.; drld. out 3,002 ft.; arng. test 3,002 ft.; O.T. D. 3,005 ft.

J. H. Lockhart No. 4 Raulston, 330 ft. SW cor. NE SE Sec. 12-17-14. Cd. sd. S.O. 3,170-72 ft.; recond. mud 3,172 ft.

Snuggs, Sebersky & Bylick No. 1 Laney, C NE NE Sec. 28-17-14. Rep. rig 2,-860 ft.

LOUISIANA

N. LOUISIANA WILDCATS

Bienville Parish

Ark.-La. Gas Co. No. 1-B Davis Bros. Lbr. Co., NW SW Sec. 7-16-4. 9⅝-in. csg. 2,557 ft.; D.S.T. 5,845-76 ft.; 50,-000,000 ft. gas; open flow; 10 min.; ¼-in. cks. T.&B.; B.M.A. 5,640 ft.; b. stringer anhy. 5,753 ft.; D.S.T. 6,185-6,203 ft.; tstd. 1,530 ft. S.W. 16 min.; ¼-in. cks. T.&B.; top Pettit L. 6,706 ft.; no por.; drlg. sdy. sh. 7,099 ft.

Producers O. & G. Co. No. 1 Graves & Thomas, SE cor. SW SE Sec. 23-15-10. Set 13⅜-in. 180 ft.

Bossier Parish

W. M. Chambers No. 1 Thomas, SE cor. Sec. 10-22-11. Drlg. 2,850 ft.

H. M. Harrell et al No. 1 Edwards Est. Unit, Sec. 5-17-11. Drlg. L.&sh. 2,560 ft.

Premier Inv. Co. No. 1 McDade, SE SW NE Sec. 28-19-11. T.D. 2,384 ft.; acd. with 1,000 gal.; csg. seat gave away; hole full S.W.; U.R. and cond. hole 2,-384 ft.

J. B. Stovall et al No. 3 Ark. Fuel Oil Co. fee, NE SE Sec. 15-19-11. 6-in. csg. 362 ft.; W.O.C.

Caddo Parish

C. L. Ablinger No. 1 Gregory, NE cor. Sec. 3-20-11. 6-in. 960 ft.; tstg. 971 ft.

R. E. Allison No. 3 Ellerbe, NE cor. Sec. 28-18-14. R.U.

R. E. Allison No. 1 Jones & Mabry Unit, SE Sec. 21-18-14. R.U.

Ark.-La. Gas Co. No. 1 Webb, C NW SW Sec. 4-16-13. 9⅝-in. csg. 1,236 ft.; drlg. sh.&L. 4,065 ft.

F. W. Burford No. 1 Williams, SW cor. NW SW Sec. 4-23-15. Set 5½-in. csg. 6,052 ft.; T.D. 6,090 ft.; comp.; 202 B. P.D.; 2-in. ck.; 250,000 ft. input gas; used 3,000 gal. acd.

Carney et al No. 3 Hart, SE NW Sec. 21-21-16. R.U.

W. D. Chew No. 6 Stiles, SW NE Sec. 28-21-16. Set 6-in. csg. 1,945 ft.; T.D. 1,954 ft.; tstd. S.W. 1,954 ft. and P.B. 1,944 ft.; drld. out to 1,954 ft.; tstd. S.W.; W.O. 1,954 ft.

Colonial Corp. No. 1 Thigpen-Herold, 330 ft. S and W, C Sec. 34-22-16. Set 9⅝-in. csg. 3,080 ft.; W.O.C.

Paul Cooper No. 2 Stiles, SW SE Sec. 28-21-16. Set 6-in. csg. 1,542 ft.; W.O.C.

L. L. Davidson No. 4 Muslow, SE cor. NW SE Sec. 26-21-16. Set 8-in. csg. 982 ft.; D.&A. 990 ft.

J. P. Driscoll et al No. 1 Woolworth, SE cor. Sec. 26-20-15. Set 16-in. csg. 208 ft.

G. W. Gibson No. 4 Muslow, NW cor. Sec. 6-20-15. R.U.

Hillman et al No. 1 Gilbert, SE cor. Sec. 18-20-15. D.&A. 2,180 ft.

C. D. Loe No. 1 Meyer, SE cor. Sec. 33-18-14. Top Pettit 5,592 ft.; T.D. 5,628 ft.; perf. 5,602-25 ft. and tstd. S.W.; P.B. 5,611 ft.; 5½-in. csg. 5,627 ft.; T. D. 5,631 ft.; W.O.C.

Manziel et al No. 2 Ramsey, NE cor. Sec. 32-21-15. Set 5½-in. csg. 1,341 ft.; T.D. 1,572 ft.

Manziel et al No. 3 Ramsey, NE SE Sec. 32-21-15. Set 5½-in. csg. 1,348 ft.; acd. with 2,000 gal. at 1,590 ft.; W.O.S.R.

J. F. Mitchell No. 3 Muslow, SE NE Sec. 31-21-15. R.U.

J. Ober & Sons No. 1 fee, SE cor. Sec. 36-21-16. Set 8-in. csg. 1,431 ft.; tstd. dry 1,684 ft.; set 6-in. csg. 2,257 ft.; tstd. small spray O.&G.; csg. collapsed; T.D. 2,279 ft.; S.I.; hole cleaned; 1,700 ft. O.I.H.; W.O.S.R.

Rodessa O. & R. Co. No. 1 Chandler, C SW NE Sec. 34-18-14. Set 9⅝-in. csg. 2,067 ft.; D.S.T. 2,420-34 ft.; tstd. est. 5,000,000 ft. gas, 9 min.; ⅝-in. cks. T.&B.; rec. 270 ft. S.W.; set 7-in. csg. 5,580 ft.; D.S.T. 5,540-45 ft.; tstd. est. 5,000,000 ft. gas and 250 ft. oil, 10 min.; D.S.T. 5,545-49 ft.; 6 jts. oil, 10 min.; T.D. 5,590 ft.

Harry Smith No. 1 Sproull, SE cor. Sec. 32-20-16. 5-in. csg. 1,411 ft.; tstd. S.W. 1,910 ft.; P.B. 1,650 ft. and swbg. S.W.

Southern Star Pet. Corp. No. 1 Muslow, SE NW Sec. 17-20-15. Pmpd. S.W.; arng. dpn. 1,860 ft.; S.D. 2,150 ft.

Tri-State Prod. Corp. No. 1 Stiles, SE cor. NE Sec. 28-21-16. Rng. csg. 1,850 ft.

R. W. Williams No. 1 Ark. Fuel, SE SE Sec. 26-21-16. Set 10-in. csg. 42 ft.

Catahoula Parish

Sibley Sabine Oil Co. No. 1 Peck, S½ Sec. 36-10-8e. S.D. 2,610 ft.; rep. rig.

Claiborne Parish

Magnolia Pet. Co. No. 1-B Patton, C NE NW Sec. 13-20-5. Por. L. 5,390-92 ft. and 5,397-5,405 ft.; cmtd. 7-in. csg. 5,-388 ft.; T.D. 5,407 ft.; flwg. and swbg. est. 75 B.P.D.; used 3,000 gal. acd.

Maritzky & Bibby No. 1 McClung, Sec. 29-21-7. 6-in. csg. 1,819 ft.; T.D. 1,822 ft.; big. to tst.

E. T. Oakes et al No. 2 Kilgore, C NW SE Sec. 28-21-5. Hd. to slightly por. L. 5,294-5,303 ft.; 5½-in. csg. 5,287 ft.; used 6,000 gal. acd.; swbg. to test; tstd. S.S.O. 5,324 ft.; split csg. 2,600 ft.; cmtd. csg.; W.O.C. 5,324 ft.

Sinclair Prairie Oil Co. No. 9 Langston, SW cor. Sec. 18-21-7. Set 13-in. csg. 103 ft.

De Soto Parish

S. S. Alexander No. 1-A Stoll, sec. 5-12-16. Set 7-in. csg. 2,705 ft.; acd. with 3,000 gal. and tstd. est. 2,000,000 ft. gas; 400 lbs.; gas exhausted; W.O.S.R.; 1,000 ft. O.I.H., 2,761 ft.

Paul Miller No. 2 Jal Drlg. Co., NE Sec. 5-11-11. Set 7-in. csg. 4,038 ft.; perf. 3,901-14 ft.; C.I.; W.O. ga.; R.P. 1,400 lbs.; O.T.D. 4,205 ft.

Tippett Oil Corp. No. 1 Williams, SE cor. Sec. 31-13-11. Losing returns 1,-065 ft.

Grant Parish

Long & Porter No. 1 Swope, SE cor. NW SE Sec. 18-9-1e. 10-in. csg. 84 ft.; T.D. 1,619 ft.; no sd.; S.D.; W.O.

La Salle Parish

Alfred Black No. 1 Tullos, Sec. 23-10-1e. D.&A. 1,495 ft.

Trichell et al No. 1 Gallagher, NW cor Sec. 31-9-2e. Cg. 1,370 ft.

Madison Parish

Continental Oil Co. No. 2 Singer Mfg. Co., C Sec. 2-15n-11e. Set 7⅝-in. csg. 522 ft.; cg. sd. 2,897 ft.

Red River Parish

N. W. Hunter No. 1 LeLong, NW cor. NW SE Sec. 33-12-10. 10-in. csg. 40 ft.; S.D.; 1,000 ft.; rig repair.

Magnolia Pet. Co. No. 59 Pugh, Sec. 12-12-11. Drlg. sh.&L. 5,353 ft.

J. C. Prine No. 3 Haynes, SW cor. Sec. 20-13-10. 5¾-in. csg. 2,510 ft.; D.D. to 2,560 ft.; W.O.S.R.

Sabine Parish

Addison & Peterson No. 1 Dew, SE cor. SW SE Sec. 22-8-11. Used 1,500 gal. acd. and tstd. S.O. 2,587 ft.; S.D. 2,-589 ft.

Clyde Creighton No. 1 Bowman Hicks, C NE NW Sec. 3-7-12. Partly R.U. and S.D.

Earl F. Fox No. 1 Cook Ld. Co., SW cor. SE NW Sec. 1-9-12; O.W.W.O. O.T.D. 3,655 ft.; arng. dpn. 3,655 ft.

A. B. House No. 1 Sabine, NW NW Sec. 23-7-14. 8-in. csg. 2,134 ft.; used 7,000 gal. acd.; tstd. dry; drlg. sdy. sh. 2,734 ft.

M. J. Kissick No. 1 J. Newton, NE cor. SE Sec. 1-7-11. Set 10-in. csg. 65 ft.; drlg. sh. 1,700 ft.

LeGrande & Brown No. 1 Tatum, NE cor. NW NE Sec. 17-8-13. Tstd. dry 2,-130 ft.; tstd. S.G.; acd. with 1,000 gal.; tstd. dry 2,340 ft.; did not acd.; tstd. S.W.; S.O. 2,340 ft.; 500 ft. O.I.H.; used 3,000 gal. acd. and tstg. 2,340 ft.

Major Oil Co. No. 6 Bowman Hicks, C SW SE Sec. 11-7-13. Set 10-in. 82 ft.; drlg. 1,638 ft.

Morris Co. No. 1-A Ervine & Bishop, C NE SW Sec. 14-7-13. Set 6-in. csg. 2,-177 ft.; used. 3,000 gal. acd.; tstg. 2,-573 ft.

H. L. Nutting No. 1 Williams, SW cor. Sec. 13-7-11. Drlg. ch. rk. 2,683 ft.

C. R. Schuster No. 1 Mary Garcia, NE cor. NW SE Sec. 15-7-13. T.D. 2,603 ft. P.B. 2,585 ft.; tstd. dry S.D.; W.O. 2,-585 ft.

Sklar & Neighbors No. 1 Martinez, Sec. 11-7-13. 6-in. csg. 2,172 ft.; used 3,000 gal. acd.; tstd. S.O. 2,312 ft.; top sd. 2,552 ft.; tstd. S.O. and S.W. 2,554 ft.; will P.B.

M. S. Slagle et al No. 1 Chadwick, SW cor. SE NW Sec. 32-8-10. R.U.

C. H. Smith No. 1 Sabine Lbr. Co., NE cor. NW NW Sec. 9-7-13. Set 10-in. csg. 66 ft.

J. L. Spier No. 2 Hale, SW cor. NW SW Sec. 1-7-13. R.U. and S.D.

Lee Whitehurst No. 2 First Natl. Bnk., C SE NW Sec. 14-7-13. 7-in. csg. 2,212 ft.; tstd. dry 2,301 ft.; used 3,000 gal.

acd.; tstd.; used 2,000 gal. acd. and W.O.S.R. 2,605 ft.

Zwolle Synd. No. 1 Mansfield Lbr. Co. Sec. 8-7-19. T.D. 4,323 ft.; 5-in. csg 3,830 ft.; drlg. plug 4,323 ft.; 2,500 gal acd.; perf. 3,730-70 ft.; tstd. dry; W.O 3,770 ft.; O.T.D. 4,323 ft.; sqzd. off perf.; set short string 4-in. csg. 3,883 ft. and perf. 3,861-70 ft. and 3,880-83 ft.; O.T.D. 4,323 ft.; tstd. S.W.; S.O.: W.O. 3,838 ft

Tensas Parish

H. V. Schumacker No. 4 Mound Plantation, Sec. 29-11-12e. Rmg. to bttm.; T. D. 2,450 ft.; S.D. for D.S.T. 2,450 ft.

Webster Parish

Hunt Oil Co. No. 9 Babb, C N WSE Sec. 14-21-10. Drlg. sh.&L. 4,656 ft.

Hunt Oil Co. No. 10 Babb, SE cor. Sec. 14-21-10. R.U.

Hunt Oil Co. No. 2 Davis Unit, C NW NW Sec. 24-21-10. Hollw. sd. 5,595-5,603 ft.; set 9⅝-in. csg.; did not test Hollwy. sd.; top Bodcaw sd. 8,187 ft.; cg. sd. 8,205 ft.

Hunt Oil Co. No. 10 Davis, C SE SE Sec. 13-21-10. Hollwy. sd. 5,674-78 ft. and 5,719-27 ft.; 9⅝-in. csg. 5,660 ft.; tstd. small S.O. 6.038 ft.; Hollwy. sd.; drlg. sdy. sh. 7,546 ft.

Hunt Oil Co. No. 22 Hope Est., C SE SW Sec. 24-21-10. Top Tr. Pk. 5,633 ft.; set 9⅝-in. csg. 5,700 ft.; T.D. 5,-900 ft.; Hollwy. sd. 5,722-36 ft.; blew with gas 128 bbls. in 14 hrs.; comp.; 175 B.P.D.; ⅝-in. ck.; T.P. 100 lbs.; C. P. 700 lbs.

Hunt Oil Co. No. 1 Sandifer, C NE NE Sec. 4-20-10. No Hollwy. sd.; top "D" sd. 8,534 ft.; S.O. 8,534-50 ft.; "D" sd 8,537-68 ft.; Bodcaw sd. 8,628-68 ft.; set 7-in. csg. 8,715 ft.; perf. csg. 8,540-65 ft. and tstd. S.W.; will sqz. and retest; T.D. 8,600 ft.; O.T.D. 8,720 ft.; P. B. 8,558 ft. and cmt.; did not hold; will P.B. again and perf. 8,533-38 ft.

Magnolia Pet. Co. No. 4 Branton, NE cor. Sec. 6-22-9. Drlg. sh.&L. 4,935 ft.

Magnolia Pet. Co. No. 1-C Pardee, C NW NE Sec. 17-23-11. Rmd. and set 9⅝ in. csg. 5,920 ft.; top lower Marine 7,998 ft.; 8,505-10 ft. strks. hd. sd., O &G. odor; cd. 8,537-39 ft.; 2-ft. sd. gas odor; drlg. sdy. sh. 9,435 ft.

Midstates Oil Corp. No. 1 Weiori Lbr. Co. Unit, NE cor. NW Sec. 3-20-10 9⅝-in. csg. 5,699 ft.; top lower Marine 8,120 ft.; "D" sd. 8,521-53 ft.; Bodcaw sd. 8,619-65 ft.; sat in each; gas-oil contact in Bodcaw sd. 8,397 ft. subsea; set 7-in. csg. 8,671 ft.; perf. 8,519-33 ft.; 60 shots; flwd. 172.32 bbls. in 8 hrs.; 46-grav. sweet crude, no wtr.; initial; T.P. 960 lbs.; C.P. 1,080 lbs.

North American Oil Consol. Co. No. 4 Stewart-Coyle, C NW SE Sec. 29-21-10. Drlg. sh.&L. 4,169 ft.

Ohio Oil Co. No. 5 Bodcaw, Acct. 5, Sec. 13-21-10. S.D. 5,464 ft.; high wtr.

Ohio Oil Co. No. 51 Bodcaw Acct. 2, NE cor. Sec. 15-21-10. Drlg. hd. sd. 7,417 ft.

Ohio Oil Co. No. 1 W. Cox, Acct. 2, SE cor. SW Sec. 15-21-10. No Hollwy. sd.; 9⅝-in. csg. 5,714 ft.; 7-in. csg.; T.D. 8,520 ft.

Ohio Oil Co. No. 8 B. Sydney Hrs., SW cor. Sec. 16-20-10. No Hollwy. sd.; 9⅝-in. csg. 5,670 ft.; drlg. sdy. sh. 6,537 ft.

Oliphant Oil Corp. No. 1 Fred Banks, C SE NW Sec. 2-20-10. Set 9⅝-in. csg. 5,616 ft.; clnd. hole 7,480 ft.; D.&A.

Oliphant Oil Corp. No. 1 Gray & Stephens, C SE SW Sec. 35-21-10. Top Tr. Pk. 5,882 ft.; Hollwy. sd. 5,975-88 ft.; 9⅝-in. csg.; T.D. 6,087 ft.

Oliphant Oil Corp. No. 1-B Stewart, C NW NE Sec. 5-20-10. Top Tr. Pk. 6,117 ft.; Holloway sd. 6,160-67 ft.; 9⅝ in. csg. 5,884 ft.; top "A" sd. 8,378 ft.; "B" sd. 8,578 ft.; top "D" sd. 8,-658 ft.; top Bodcaw sd. 8,747 ft.; both sds. no odor or stain; sh. 5,637 ft.; top Davis sd. 8,997 ft. (odor gas); D. &A.; T.D. 9,187 ft.

Oliphant Oil Corp. No. 2-B Stewart, C NW NW Sec. 4-20-10. No Hollwy. sd.; 9⅝-in. csg. 5,615 ft.; drlg. hd. sd. 8,-321 ft.

Sibley Sabine No. 1 McDonald, NW cor. Sec. 32-17-9w. Top anhy. 4,598 ft.; top M. anhy. 4,884 ft.; b. stringer anhy. 5,226 ft.; D.&A. 6,279 ft.

Stanolind O. & G. Co. and W. Delaney No. 1 Pardee-Coffee Unit, C NE Sec. 36-21-10. Drlg. sh.&L. 4,936 ft.

Stanolind O. & G. Co. and Hunt Oil Co. No. 1 Pardee-Coffee Unit, C NE NE Sec. 36-21-10. Top Tr. Pk. 5,897 ft.; no Hollwy.; 9⅝-in. csg. 5,944 ft.; drlg. sh.&sd. 7,138 ft.

Stanolind O. & G. Co. No. 1 Webster Inv. Co., C NE NE Sec. 35-21-10. 13⅜-in. csg. 737 ft.; no Hollwy. sd.; top Tr. Pk. 5,680 ft.; 9⅝-in. csg. 5,997 ft.; drlg. sd. 7,156 ft.

Union Prod. Co. No. 1 Walker Unit, 50 ft. S, C SE Sec. 30-18-8. 13⅜-in. csg. 1,413 ft.

Woodley Pet. Co. No. 1 J. O. Couch, C NW SW Sec. 36-21-10. Drlg. sh. 6,125 ft.

SOUTH LOUISIANA FIELDS

Abbeville—Vermilion Parish

Continental Oil Co. No. 1 Franciol, Sec. 67-12s-3e. Drk.

Bancroft—Beauregard Parish

Geo. E. Lilly et al No. 1 W. K. Rice, Sec. 15-6s-13w. Drlg. sdy. sh.&L. 6,630 ft.

Republic Prod. Co. No. 2 Columbia Lu. & Tmbr. Co., Sec. 16-6s-13w. T.D. 3,400 ft.; P.B.; sdtrkd.; T.D. 7,360 ft.; 7-in. csg. 7,352 ft. (cor.); perf. csg. 7,-294-99 ft.; fsg. for tbg.

Republic Prod. Co. No. 3 Columbia Ld. &Tbr. Co., Sec. 16-16s-13w. Drk.

Republic Prod. Co. No. 2 Lutcher Moore Lbr. Co., Sec. 16-6s-13w. T.D. 7,297 ft.; top oil sd. 7,260 ft.; 7-in. csg. 7,297 ft.; gas sd. 7,097-7,106 ft.; drld. out 7,-370 ft.; perf. csg. 7,283-85 ft.; made sqz. job; perf. csg. 7,272-88 ft.; I.P. 310 B.P.D.; ⅛- and ¼-in. cks.

Republic Prod. Co. No. 3 Lutcher Moore Lbr. Co., Sec. 16-6s-13w. Drlg. sh. 805 ft.

Bateman Lake—St. Mary Parish

Texas Co. No. 2 State-Bateman Lake, Sec. 21-16s-12e. Loc.

Texas Co. No. 1 Wax Bayou, Sec. 21-16s-12e. T.D. 11,185 ft.; 7⅝-in. csg. 11,126 ft.; perf. csg. 10,937-48 ft.; tstd. S.W.

Baton Rouge—East Baton Rouge Parish

Geo. Helis et al No. 1 Aztec Oil & Roy. Co., Sec. 41-8s-1w. Drlg. sh. 6,754 ft.

Wm. Helis No. 3 Duplantier, Sec. 65-7s-1w. T.D. 6,820 ft.; P.B. 6,788 ft.; perf. csg. 6,775-78 ft.; flwd. oil and S.W.; killed to rework; pulling screen.

Bayou Blue—Iberville Parish

Humble O. & R. Co. No. 10 Wilberts, Sec. 66-9s-11e. Drlg. sh. 5,183 ft.

Bayou Bouillon—St. Mary Parish

Transcontinental Oil Co. No. 5 State, Sec. 13-9s-9e. R.U.R.

Bayou Choctaw—West Baton Rouge

La. Crusader No. 4 Schwing, Sec. 29-8s-11e. Drlg. sh. 6,749 ft.

La. Crusader No. 5 Schwing, Sec. 29-8s-11e. Drlg. sh. 2,250 ft.

Bayou Des Allemands—St. Charles Parish

Amerada Pet. Corp. No. 1 Gheens Realty Co., sec. 56-15s-20e. T.D. 7,021 ft.; D.P. stk.; P.B. to 5,000 ft.; sdtrkd. at 5,000 ft.; drld. to 6,984 ft.; 9⅝-in. csg 6,982 ft.; T.D. 8,266 ft., salt; P.B. 8,-150 ft.; D.S. stk.; sdtrkd.; T.D. 8,217 ft.; 6⅝-in. csg. 7,332 ft.; perf. csg. 7,-239-54 ft.; I.P. 604 B.P.D.; ¾-in. ck.

Big Lake—Cameron Parish

Union Sulphur Co. No. 1 Hebert, Sec 18-12s-8w. T.D. 10,521 ft.; P.B. 9,160 ft.; perf. csg. 9,140-57 ft.; I.P. 7 B.O P.D. with 98% S.W.; perf. csg. 8,210-14 ft.; tstg.; P.B. 8,238 ft.; perf. csg. 8,210-14 ft.; I.P. 4½ B.F.P.H., 2% S. W.; 13/64-in. ck.

Caillou Island—Terrebonne Parish

Texas Co. No. 4 State-Terrebonne Bay. Sec. 19-23s-20e. Loc.

Texas Co. No. 5 State, Sec. 19-23s-20e. T.D. 6,240 ft.; sdtrkd.; T.D. 6,521 ft.; P.B.; sdtrkd.; T.D. 6,672 ft.; P.B.; sdtrkd.; T.D. 6,709 ft.; run csg.

Texas Co. No. 29 State, Sec. 17-23s-20e. Rig.

Cameron Meadows—Cameron

Burton-Sutton Oil Co. No. 26 Sch. Ld. Sec. 16-14s-13w. T.D. 2,465 ft.; 13⅜ in. csg. 2,465 ft.; T.D. 5,171 ft.; to resume drlg.

Chacahoula—La Fourche Parish

Sun Oil Co. No. 3 Dibert, Stark & Brown Cypress Co., Sec. 70-15s-15e. Drlg. sd. &sh. 6,900 ft.

Sun Oil Co. No. 4 Dibert Stark and Brown Cypress Co., Sec. 70-15s-15e. Loc.

Charenton—St. Mary Parish

Commerce Oil Co. No. 2 Pano, Sec. 31-13s-10e. T.D. 6,705 ft.; top sd. 6,693 ft.

Edwards & Aber No. 2 Blanchard, Sec. 21-13s-9e. T.D. 1,148 ft.; 5½-in. csg. 1,141 ft.; tstd. S.W.; P.B. 1,132 ft.

Edwards & Aber No. 1 Lebland, Sec. 21-13s-9e. Top sd. 1,119 ft.; T.D. 1,123 ft.; fsg.

H. L. Edwards et al No. 1 Robichaux, Sec. 30-13s-9e. T.D. 1,782 ft.; 5-in. csg 1,777 ft.; I.P. 173 B.P.D.; pmpg.

Kinsley Oil, Inc., No. 1-B Hertel, Sec. 30-13s-9e. Loc.

Kinsley Oil Co., Inc., No. 3 LeBlanc, Sec. 21-13s-9e. Top sd. 1,797 ft.; T.D. 1,804 ft.; W.O.C.

Pan American Prod. Co. No. 10 Veeder, Sec. 30-13s-10e. T.D. 1,668 ft.; 7-in. csg. 1,645 ft.; tstd. S.W.; drld. to 3,-050 ft.; P.B. 2,250 ft.; T.D. 2,459 ft.; 5-in. csg. 2,454 ft.; W.O.C.

Peterson Pet. Corp. No. 1 Green Est., Sec. 27-13s-9e. Loc.

J. P. Scranton et al No. 1 State, Twp. 13s-9e. Loc.

St. Mary Oil Co. No. 1 Robichaux, Sec. 21-13s-9e. Drlg. 1,780 ft.

Convent—St. James Parish

Continental Oil Co. No. 2 Realty Operators, Inc., Sec. 16. Loc.

Creole—Cameron Parish

Superior Oil Co.-Pure Oil Co. No. 8 State-Gulf of Mexico, T.D. 5,249 ft.; P. B.; sdtrkd.; T.D. 2,983 ft.; P.B. to sdtrk.

Darrow—Ascension Parish

Humble O. & R. Co. No. 2-B Community, Sec. 55-10s-2e. Cg. sd.&sh. 7,562 ft.

Humble O. & R. Co. No. 19 Community, Sec. 31-10s-2e. T.D. 7,280 ft., salt; P.B 4,596 ft.; sdtrkd.; drlg. sd. 7,143 ft.; no report.

Humble O. & R. Co. No. 4 Landry, Sec. 34-10s-2e. R.U.

Kiva Oil Co. No. 1 Duplessis, sec. 69-10s-2w. S.D. 2,523 ft.

Dog Lake—Terrebonne Parish

Texas Co. No. 22 State, Sec. 5-22s-16e. 13⅜-in. csg. 2,030 ft.; drlg. sd.&L. 6,-564 ft.

Edgerly Field—Calcasieu Parish

R. H. Kean et al No. 1 M. J. Muller et al, Sec. 29-9s-11w. S.D. 2,825 ft.

Union Sulphur Co. No. 1 Ld. Sulphur Mining Co., Sec. 33-9s-11w. Drlg. S.W. sd. 6,636 ft.

Fausse Point—Iberia Parish

Texas Co. No. 5 State Lake-Fausse Point, Sec. 35-11s-8e. Drlg. sh.&L. 7,284 ft.

Gibson—Terrebonne Parish

Shell Pet. Corp. No. 6-B Realty Operators, Sec. 17-17s-15e. Drlg. sh. 6,410 ft.

Garden Island—Plaquemines Parish

Texas Co. No. 30 State, Sec. 38-23s-33e. T.D. 6,943 ft.; fsg. for D.S.

Gillis—Calcasieu Parish

Fohs Oil Co. No. 1 Erwin, Sec. 14-9s-8w. Cg. sh. 6,985 ft.

Grand Bay—Plaquemines Parish

Gulf Ref. Co. No. 1 State-QQ, Sec. 6 20s-19e. 13⅜-in. csg. 1,498 ft.; shaly sd. S.O. 6,083-86 ft.; cg. sdy. sh. 6,172 ft.

Hackberry—Cameron Parish

L. W. Capps et al No. 1 Duhon, Sec. 27-12s-10w. Drlg. sh. 1,350 ft.

Gulf Oil Corp. No. 24 Erwin, Sec. 13-12s-10w. T.D. 3,205 ft.; 7-in. csg. 3,171 ft.; I.P. 66 B.P.D.; ¼-in. ck.

Stanolind O. & G. Co. No. 2 Kaugh, Sec 28-12s-10w. T.D. 3,050 ft.; P.B. 1,508 ft.

Superior Oil Co. No. 4 Benson, Sec. 30-12s-10w. Drlg. sh. 6,385 ft.

Texas Co. No. 16-B State-Hackberry, Twp. 12s-9w. R.U.

Texas Co. No. 24-B State, Sec. 12s-9w T.D. 8,052 ft.; sdtrkd.; T.D. 8,163 ft.; 7-in. csg. 8,050 ft.; perf. csg. 7,903-16 ft.; tstd. S.W.; P.B. 7,780 ft.; perf. csg. 7,763-74 ft.; W.O.S.R.

Union Sulphur Co. No. 7 Caldwell et al, Sec. 37-12s-10w. Drlg. sd. 4,900 ft.

Union Sulphur Co. No. 11 Doiron, Sec. 37-12s-10w. Drk.

Horseshoe Bayou—St. Mary Parish

Texas Co. No. 2 State, Sec. 37-17s-9e. T.D. 11,644 ft.; 9⅝-in. csg. 11,631 ft.

Jeanerette—St. Mary Parish

Herton Oil Co. No. 1 Adeline Sugar Co., Sec. 39-13s-9e. Loc.

Herton Oil Co. No. 9 Carter, Sec. 38-13s-9e. Drlg. sh. 6,950 ft.

Jefferson Island—Iberia Parish

Texas Co. No. 2 Jefferson Island, Sec. 58-12s-5e. Loc.

Jennings—Acadia Parish

W. T. Burton No. 6 Roboria, sec. 41-9s-2w. 7-in. csg. 6,721 ft.; fsg. tbg.; T.D. 6,997 ft.; sdtrkd at 6,118 ft.; drld. to 6,178 ft.; sdtrkd. at 6,023 ft.; cg. oil sd. 6,700 ft.

A. W. Forrester No. 1 Jules Clement, Sec. 46-9s-2w. Drlg. sh. 1,200 ft.

Frio Oil Co. No. 1 Iowa-Jennings, Sec. 45-9s-2w. T.D. 6,887 ft.; P.B. 4,300 ft.; T.D. 6,170 ft.; twisted off drill collar; fsg.; sdtrkd. 5,550 ft.; T.D. 7,335 ft.; P.B. 2,965 ft.; sdtrkd.; T.D. 6,040 ft.; abd.

Glassell & Glassell No. 4 McFarlain, Sec. 41-9s-2w. Drlg. sd.&sh. 2,435 ft.

Glassell & Glassell No. 6 Trusheil, sec. 42-9s-2w. T.D. 8,005 ft.; 7⅝-in. csg. 7,-973 ft.; T.D. 9,132 ft.; P.B.

Guaranty Oil Co. No. 2 Houssere-Latrielle, Sec. 47-9s-2w. T.D. 1,840 ft.; W. O.S.R.

Gulf Oil Corp. No. 40 Arnaudet, sec. 48-9s-2w. Drlg. sd.&L. 6,602 ft.

Gulf Ref. Co. No. 1 Lamb, Sec. 45-9s-2w. Drlg. sd. 5,075 ft.

Iles Pet. Co. No. 3 Jennings, Sec. 41-9s-2w. Drlg. sh. 1,650 ft.

L. & L. Oil Co. No. 4 Houssiere Latreille, Sec. 47-9s-2w. T.D. 1,825 ft.; run 7-in. csg.

Ladak Oil Corp. No. 7 Jennings, Sec. 46-9s-2w. T.D. 2,435 ft.

O'Mera et al No. 2 McFarlain, Sec. 41-9s-2w. T.D. 1,625 ft.; 10¾-in. csg. 1,-628 ft.; drlg. sd. 3,893 ft.

Shell Pet. Corp. No. 5 Community, Sec. 40-9s-2w. Drlg. sh. 5,933 ft.

Stanolind O. & G. Co. No. 113 Crowley & Mineral Co., Sec. 48-9s-2w. Drlg. sd. &sh. 5,104 ft.

Superior Oil Co. No. 9 Jennings-Haywood, Sec. 41-9s-2w. Drlg. sd.&sh. 4,600 ft.

Superior Oil Co. No. 15 Leckelt, Sec. 42-9s-2w. Drlg. sh. 8,195 ft.

Three Sands Oil Co. No. 2 Clement, Sec 46-9s-2w. 6-in. csg. 1,700 ft.; T.D. 2,-467 ft.; rng. 4½-in. csg.; bld. S.W.; S.D. prep. to dpn.

Lafitte—Jefferson Parish

Carter-Perrin & Brian No. 1 Lucien Adams, Sec. 9-17s-24e. Drlg. sh. 9,-659 ft.; no report.

Texas Co. No. 12 LaFitte, Sec. 20-17s-24e. T.D. 10,145 ft.; oil sd.; 7⅝-in. csg. 10,145 ft.

Texas Co. No. 4 Madison Realty Co., 17s-24e. T.D. 7,921 ft.; fsg.

Texas Co. No. 1 Sch. Bd., Sec. 16-17s-24e. 13⅜-in. csg. 2,030 ft.; drlg. sdy. sh.&L. 8,517 ft.

Lake Pelto—Terrebonne Parish

Texas Co. No. 22 State, Sec. 8-23s-18e. Drlg. sh. 4,553 ft.

Leesville—La Fourche Parish

Lincoln Oil Co. No. 6 State, Sec. 26-21s-22e. T.D. 4,242 ft.; P.B. to 3,742 ft.; tstg.

Texas Co. No. 7 Leeville, sec. 27-21s-22e. T.D. 8,667 ft.; D.S. stk.; sdtrkd.; T.D. 8,436 ft.; rmg.

Lirette—Terrebonne Parish

Humble O. & R. Co. No. 1 Laterre, Inc., Sec. 31-19s-19e. 13⅜-in. csg. 3,174 ft.; drlg. sdy. sh. 5,260 ft.

Lockport—Calcasieu Parish

T. C. Markley No. 1 Farquhar (offset Continental No. 1 J. H. Moss). T.D. 6,733 ft.; P.B. 5,300 ft.; 7-in. csg. 5,-320 ft.; perf. csg. 4,607-11 ft.; tstd. S.W.; P.B. 4,441 ft.; perf. csg. 3,806-14 ft.; tstd. mud and S.W.; W.O.S.R.

Lake Long—La Fourche Parish

Fohs Oil Co. No. 6 State-Lake Long Twp. 17s-19e. 10¾-in. csg. 3,066 ft.; cd. oil sd. 9,365-69 ft.; T.D. 9,482 ft.; 7-in. csg. 9,481 ft.; W.O.C.

New Iberia—Iberia Parish

H. Fotiades No. 7 Gulf Ld., Sec. 25-12s-7e. Drk.

Wm. Helis No. 6 Bolivar, Sec. 56-12s-7e T.D. 3,442 ft.; 7-in. csg. 3,408 ft.; tstd. dry gas; pulling screen.

Texas Co. No. 2 Bryant, Sec. 25-12s-7e R.U.

Texas Co. No. 5 Bryant, Sec. 25-12s-7e. Cg. sdy. sh. 6,335 ft.

Texas Co. No. 1 Gonsoulin, Sec. 13-12s-7e. Drlg. sdy. sh.&L. 8,462 ft.

Texas Co. No. 1 Renaudet et al, Sec. 71-12s-7e. R.U.

North Crowley—Acadia Parish

Humble O. & R. Co. No. 4 Federal Ld. Bnk., Sec. 34-8s-1e. Drlg. sh. 2,654 ft.

Humble O. & R. Co. No. 5 Federal Ld. Bnk., Sec. 33-8s-1e. Loc.

North Tepetate—Acadia Parish

Atlantic Ref. Co. No. 2 Klumpp, Sec. 12-7s-2w. Drlg. sd.&sh. 6,600 ft.

Port Barre—St. Landry Parish

Pan American Prod. Co. No. 1 Rene Nezal. Drk.

T. D. Spill No. 1 Gaudet, sec. 4-6s-5e S.D. 4,700 ft.

Potash—Plaquemines Parish

Humble O. & R. Co. No. 37 Orleans Lv Bd., Sec. 23-18s-15e. T.D. 3,138 ft.; rng. 13⅜-in. csg.

Western Gulf Prod. Co. No. 1 Paseale, Sec. 6-18s-27e. Loc.

Western Gulf Prod. Co. No. 1 Sam Treadway, Sec. 6-18s-27e. Drlg. sh. 2,-658 ft.

Western Gulf Prod. Co. No. 1-A Treadway, Sec. 6-18s-27e. Loc.; (cor.).

Quarantine Bay—Plaquemines Parish

Gulf Ref. Co. No. 5 State, Sec. 17-19s-17e. Loc.

Gulf Ref. Co. No. 6 State, Sec. 17-19s-17e T.D. 5,900 ft.; 9⅝-in. csg. 5,880 ft.

Gulf Oil Ref. Co. No. 7 State, Sec. 18-19s-17e. Drlg. sdy. sh. 1,004 ft.

Raceland—La Fourche Parish

Amerada Pet. Corp. No. 1 Godchaux Sugars, Inc., Sec. 34-15s-19e. 18⅝-in csg. 262 ft.; T.D. 11,312 ft.; 7-in. csg 11,312 ft.; T.A.

Amerada Pet. Corp. No. 2 South Coast Corp., Sec. 35-15s-19e. T.D. 12,200 ft.; 4½-in. csg. 10,189 ft.; P.B. 12,164 ft., perf. csg. 12,049-12,120 ft.; sqzd. perf.; drld. out to 12,135 ft.; perf. csg. 11,-840-11,960 ft.; swbd. S.W.; P.B. 7,296 ft.; perf. csg. 7,265-70 ft.; made sqz. job; drld. out to 7,280 ft.; made sqz. job 7,210 ft. and 7,265 ft.; perf. csg. 7,233-43 ft.; swbd. salty mud; abd.

Amerada Pet. Corp. No. 3 South Coast Corp., Sec. 34-15s-19e. 11¾-in. csg. 2,-698 ft.; T.D. 10,267 ft.; O.S. 10,140-10,228 ft.; rmg.

Tide Water Oil Co. No. 1-A South Coast Sec. 34-15s-19e. T.D. 10,315 ft.; P.B. 7,350 ft. to test 7,160-7,228 ft.

Sorrento—Ascension Parish

Sorrento Pet. Corp. No. 2 White, Sec. 22-10s-4e. 10¾-in. csg. 1,940 ft.; drlg. sh.&L. 5,816 ft.

South Roanoke—Jeff Davis Parish

Union Sulphur Co. No. 2 T. R. S. Farms, Sec. 23-10s-4w. T.D. 10,854 ft.; drlg.; sdtrk. 9,075 ft.; drilled to 9,266 ft.; stuck D.S.; P.B. 8,860 ft.; sdtrkd.; drlg. sh. 9,052 ft.

Gueydan—Acadia Parish

A. M. Barbe No. 1 G. L. Humble, Sec. 27-11s-1w. T.D. 1,061 ft.; W.O.C.

Buckley et al No. 1 Mulvey Irrig. Co., Sec. 34-11s-1w. Top salt 4,792 ft.; T.D. 4,801 ft.; S.D.; abd.

Burton-Sutton Oil Co. No. 1 Valerean-Simon, Sec. 37-11s-1w. Drlg. sh.&sd. 6,650 ft.

Starks—Calcasieu Parish

J. R. Turnbull et al No. 5 Industrial Lbr. Co., Sec. 30-9s-12w. R.U.

Sweet Lake—Cameron Parish

Pure Oil Co. No. 1 Stanolind O. & G. Co. fee lse., Sec. 12-13s-8w. Loc.

Timbalier Bay—La Fourche Parish

Gulf Oil Corp. No. 4 State, sec. 36-22-21e. T.D. 7,373 ft.; T.D. sdtrkd. hole 6,231 ft.; fsg.; P.B. and sdtrkd. 3,501 ft.; T.D. 6,545 ft.; drld. by jnk. to 6,668 ft.; P.B.; 7-in. csg. 6,651 ft.; top salt 7,224 ft.; T.D. 7,268 ft., salt; P.B. 5,400 ft.; perf. csg. 5,330-40 ft.; tstd. 3,504 lbs. press.; reset screen; would not flow; reset screen; bailed dry; P.B. 5,345 ft.; perf. csg. 5,330-40 ft.; swbd. dry; S.D.

Valentine—La Fourche Parish

Wm. Helis et al No. 4 Valentine Sugars, Inc., Sec. 2-17s-20e. T.D. 7,567 ft.; P.B. 6,765 ft.; W.O.C.

Pan American Prod. Co. No. 2-A Community, Sec. 58-17s-20e. Drlg. sh. 5,785 ft.

Venice—Plaquemines Parish

Tide Water Oil Co. No. 2 Buras Lve. Dist., Sec. 23-21s-30e. 13⅜-in. csg. 1,695 ft.; top salt 3,400 ft.; T.D. 3,463 ft.; P.B.; sdtrkd.; top oil sd. 3,541 ft.; 7-in. csg. 3,619 ft.; tstg.

Tide Water Asso. Oil Co. No. 9 Manhattan Land & Fruit Co., Sec. 26-21s-30e. Driving piling.

Villa Platte—Evangeline Parish

Continental Oil Co. No. 1 Phillip Fontenot, Sec. 44-3s-2e. Drlg. sd. 6,965 ft.

Continental Oil Co. No. 2 Ludeau-Haas, Sec. 44-3s-2e. Drlg. sdy. L. 4,696 ft.

Continental Oil Co. No. 2 Martha Haas, Sec. 44-3s-2e. Drk.

Continental Oil Co. No. 2 N. H. Hirsch, Sec. 44-3s-2e. Drk.

Continental Oil Co. No. 2 Petre, Sec. 44-3s-2e. Drk.

Continental Oil Co. No. 1 Adam Tate Sec. 47-3s-2e. T.D. 9,100 ft.; run 6-in. csg.

Continental Oil Co. No. 2 Tate-McDaniel, Sec. 44-3s-2e. Drlg. sh. 7,259 ft.

Texas Co. No. 1 fee, Sec. 27-3s-2e. D.S.T. 8,927-80 ft., tstd. 1,100 ft. oil; T.D. 9,124 ft.; 6⅝-in. csg. 9,072 ft.

Texas Co. No. 2 fee, Sec. 27-3s-2e. Loc.

Vinton—Calcasieu Parish

J. M. Donald et al No. 1 Gordon, Benchenstein-Flynn, Sec. 34-10s-12w. T.D 1,000 ft.; W.O.C.

West Gueydan—Vermilion Parish

Magnolia Pet. Co. No. 1 Adam Comier, Sec. 5-12s-2w. Loc.

Pure Oil Co. No. 1 Vermilion Irrig. Co. Sec. 41-12s-2w. S.D. 9,865 ft.

Woodlawn—Jeff Davis Parish

Union Sulphur Co. No. 1 Racea, Sec. 12-9s-6w. Drlg. sh.&L. 7,714 ft.

S. LOUISIANA WILDCATS

Acadia Parish

P. D. Freeman No. 2 J. E. Settig, Sec 17-7s-1w. Drlg. sh. 1,342 ft.

Tri Parish Drillers, Inc., No. 1 Paul Stag, Sec. 4-7s-1w. Drk.

Western Gulf Prod. Co., Sec. 16-10s-1w Loc.

Assumption Parish

Humble O. & R. Co. No. 1 Milliken & Farwell Co., Inc., Sec. 79-14s-14e. Drk.

Avoyelles Parish

Magnolia Pet. Co. No. 1 W. G. Bowden, Sec. 7-2s-4e. T.D. 9,014 ft.; abd.

Beauregard Parish

Republic Prod. Co. No. 1 Lutcher Moore Lbr. Co., Sec. 14-7s-12w. Top S.W. sd. 8,950 ft.; T.D. 9,890 ft.; abd.

Calcasieu Parish

Humble O. & R. Co. No. 1 Desire-Miller Sec. 32-11s-6w. Drlg. sh.&shlls. 3,005 ft.

Humble O. & R. Co. No. 1 S. A. Knapp, Sec. 20-10s-8w. M.I.M.

David B. MacDaniel No. 2 Sch. Ld., Sec 16-9s-7w. 15½-in. csg. 46 ft.; 10¾-in csg. 1,299 ft.; prep. to resume operations.

Cameron Parish

Federal Royalty Co. No. 2 State-Calcasieu Lake, Twp. 13s-9w. Loc.

Pure Oil Co. No. 3 Calcasieu Natl. Bnk., Sec. 19-12s-4w. Drlg. sh.&shlls. 5,719 ft.

Iberville Parish

California Co. No. 1 Schwing Lbr. Co., Sec. 96-10s-10e. Dredging canal.

Humble O. & R. Co. No. 1-B A. Wilberts Sons Lbr. Co., Sec. 78-8s-8e. Loc.

La Fourche Parish

Texas Co. No. 1 La Terre, Sec. 1-20-21e. T.D. 8,898 ft.; 9⅝-in. csg. 8,898 ft. T.D. 11,135 ft.; 2,509 ft. 6⅝-in. csg. 11,135 ft.; perf. csg. 9,975-10,005 ft. tstd. 21 stnds. dist.; P.B. 8,600 ft.; drlg. out cmt. to 9,316 ft.; perf. csg. 9,265-90 ft.; tstd. S.W.; plg. screen.

Texas Co. No. 1 State-Catfish Lake, Sec 77-19s-21e, 18⅝-in. csg. 90 ft.; drlg. sd. & grvl. 902 ft.

Orleans Parish

W. T. Burton No. 2-B Faubourg de Montluzin, Sec. 1-10s-13e. Drlg. sh. 9,189 ft.

W. T. Burton No. 1-B R. E. de Montluzin, Sec. 1-10s-13e. Drk.

W. T. Burton No. 1 State-Lake Pontchartrain, Twp. 10s-13e. T.D. 8,367 ft. P.B. 7,775 ft.; sdtrkd. at 7,959 ft.; T. D. 8,165 ft.; 9⅝-in. csg. 8,165 ft.; T.D. 8,241 ft.; tstd. S.W.; D.S.T. 8,135-8,241 ft.; T.D. 9,233 ft.; losing returns.

Plaquemines Parish

Texas Co. No. 1 L.L.&E. Bastian Bay, Sec. 43-20s-28e. Bldg. foundation.

St. Bernard Parish

Gulf Ref. Co. No. 4 State-R.R. (Lake Borgne), Twp. 12s-15e. Drlg. sh.&L. 7,313 ft.

Wm. Helis et al No. 1 Mereaux Munez, Sec. 34-12s-12e. R.U.

Vendome Pet. Corp. No. 1 Kenilworth Plantation, Sec. 59-13s-14e. R.U.

St. James Parish

Shell Pet. Corp. No. 1 Shexnayder, Sec 38-12s-15e. R.U.

St. Landry Parish

Herton Oil Co. et al No. 1 Thistlephlite Lbr. Co., Sec. 60-4s-4e. Well tried to blow out at 7,000 ft.; drlg. sd. 11,150 ft.

St. Martin Parish

Shell Pet. Corp. No. 1 Hazel Burdin, Sec. 15-14s-12e. Cg. sh. 9,594 ft.; recovered 7 stands of S.W. 9,514-40 ft.

Texas Co. No. 6 State Lake Mongoulois, Sec. 10-10s-9e. T.D. 9,858 ft.; 7⅝-in. csg. 9,839 ft.; drlg. sh. 9,902 ft.

Texas Co. No. 11 St. Martin Ld. Co., Sec. 21-8s-7e. Top salt 8,904 ft.; T.D. 9,404 ft.; 7-in. csg. 8,912 ft.; P.B. 7,175 ft.; drld. out to bttm.; using hole for geophysical work.

St. Mary Parish

St. Mary Oil Co. No. 2 L. Herbert, Sec. 31-13s-9e. Drlg. sh. 3,300 ft.

St. Tammany Parish

A. P. Portas No. 1 W. C. Forbes, sec 33-7s-15e Drk.

Terrebonne Parish

Shell Pet. Corp. No. 1 Peters, Sec. 73-18s-18e. T.D. 11,047 ft.; P.B. 10,343 ft.; perf. csg. 10,300-05 ft.; I.P. 450 B.P.D.; 16/64-in. ck.; T.P. 3,295 lbs.; C.P. 3,750 lbs.

Texas Co. No. 1 Continental Ld. & Fur Co., Sec. 29-18s-14e. 18⅝-in. csg. 101 ft.; T.D. 10,039 ft.; P.B. 9,852 ft.; trying to sdtrk.

Texas Co. No. 2 State-Coon Point, Twp 23s-14e. 13⅜-in. csg. 1,900 ft.; T.D. 2,851 ft.; S.D. for repairs.

Wittjen Oil Co. No. 1 Coon, Arthur Burke Sur. Drlg. sh. 3,246 ft.

League City—Galveston County

Mid-States Oil Co. No. 1-A Maco Stewart, Perry & Austin Sur. Drlg. sh. 7,220 ft.

George Echols No. 1 Maco Stewart-Ross, Lot 3, Perry & Austin Sur. Drlg. sh. 6,929 ft.

George Echols No. 1 Maco Stewart, Perry & Austin Sur. Loc.

Sammel—Harris County

H. M. Lawrence and Geo. Lawrence No. 1 C. Ehrkardt, H. Simmons Sur. R.U.

Clinton—Harris County

Stanolind O. & G. Co. No. 2 Edwards-Reels & Trobough Sur. Drk.

Eureka—Harris County

Jack Frazier No. 1 Emma Helberg, J. Reinerman Sur. R.U.

Jack Frazier No. 2 Hogg Bros., J. Reinerman Sur. 10¾-in. csg. 2,505 ft.; T. D. 7,762 ft.; cd. sd.; tstd. sw. 7,726-32 ft.; sqzd. perf.; reperf. csg.; tstg.

Houston Oil Co. No. 3 Heiberg & Lackner, J. Reinerman Sur. Loc.

Means & McGehee No. 1-E Laura Lackner, H. Reinerman Sur. Loc.

Tide Water Asso. Oil Co. No. 1 H. H. Ford, J. Reinerman Sur. T.D. 8,113 ft.; 5½-in. csg. 8,700 ft.; perf. csg. 7,762-67 ft.; tstd. S.W.; made sqz. job; W. O.C.; reperf. csg. 7,712-30 ft.; tstd. S. W.; W.O.; may abd.

Fairbanks—Harris County

Amerada-Stanolind O. & G. Co. No. 1 Ley, J. Waugh Sur. Drlg. sh. 1,720 ft.

Amerada-Stanolind O. & G. Co. No. 1 Munger, P. B. Hamblin Sur. Drlg. sh. 1,516 ft.

Amerada-Stanolind O. & G. Co. No. 2 Peters, W. K. Hamblin Sur. and Hogan Sur. Cg. sh. 7,427 ft.

Amerada-Stanolind O. & G. Co. No. 2 White, Jas. Clarkson Sur. T.D. 6,854 ft.; 5½-in. csg. 6,853 ft.; flwd. oil; killed to rework.

E. M. Hailey No. 1 Albert Brown, J. Clarkson Sur. Loc.

Noble & Baker et al No. 1 A. R. Hillegeist, J. Clarkson Sur. Drlg. sh. 3,680 ft.

Noble & Baker et al No. 1 A. R. Hillegeist, J. Clarkson Sur. T.D. 6,852 ft.; I.P. 649 B.P.D.; ¼-in. ck.

Union Prod. Co. No. 1 Fritze, Warneke & Lewis Sur. Cg. sh. 6,967 ft.

Union Prod. Co. No. 1 Whitehead-Rash-Phillips, W. S. Powell Sur. Cg. sh. 6,890 ft.

Windsor Oil Co. No. 1-A C. D. Ley, G. Ayers Sur. R.U.

Friendswood—Harris County

Humble O. & R. Co. No. 8-B Goodwin, W. K. Smith Sur. T.D. 6,044 ft.; W. O.C.

Humble O. & R. Co. No. 16 Gray, Perry & Austin Sur. Drlg. sh. 4,810 ft.

Humble O. & R. Co. No. 6 Herman Hospital, T. Choate Sur. Drlg. sh. 4,820 ft.

Humble O. & R. Co. No. 1 J. L. Jones Perry & Austin Sur. Drk.

Humble O. & R. Co. No. 15 Gray, Perry & Austin Sur. T.D. 6,037 ft.; 5½-in. csg. 5,902 ft.; I.P. 605 B.P.D.; ¼-in. ck.

Humble O. & R. Co. No. 3 Settegast, T. Choate Sur. Drk.

Humble O. & R. Co. No. 1 E. E. Watson Drk.

Cordele—Jackson County

Lewis Prod. Co. No. 2 Trushel, I.&G.N. Sur. Drlg. sh. 2,565 ft.

H. J. Porter No. 1 Woussi, Peter White Sur. Loc.

West—Jackson County

Magnolia Pet. Co. No. 5-A West R. Musquiz Sur. Top oil sd. 5,095 ft.; T.D. 5,122 ft.; tstg.

Clam Lake—Jefferson County

Shell Pet. Corp. No. 3 McFaddin, S. A. Pace Sur. 10¾-in. csg. 1,532 ft. T.D. 6,766 ft.; 5-in. csg. 6,028 ft.; P.B. 5,975 ft.; perf. csg. 5,955-66 ft.; made sqz. job; W.O.C.

LaBelle—Jefferson County

Sun Oil Co. No. 4 Broussard-Hebert, B. Blackman Lge. T.D. 8,675 ft.; 7-in csg. 8,605 ft.; pmpg. wtr. into hole to kill press. in No. 3 Broussard; made sqz. job; dpnd. 8,680 ft.; fsg. for D.P

North Cheek—Jefferson County

Magnolia Pet. Co. No. 5 J. H. Phelan, S. Stivers Sur. T.D. 8,687 ft.; run csg.

Hardin—Liberty County

Atlantic Ref. Co. No. 2-B Johnston-Finley, H. B. Johnson Sur. T.D. 7,690 ft.; perf. csg. 7,666-70 ft.; tstg.

Fohs Oil Co. No. 1 Tompkins, H. B. Johnston Sur. Drlg. sh. 4,880 ft.

Gulf Oil Corp. No. 4 Cessna, H. B. Johnston Sur. R.U.

Texas Co. No. 1 Smith, A. B. Hardin Sur. Drlg. sh. 5,705 ft.

Tide Water Associated Oil Co. No. 4 Cessna, A. B. Hardin Sur. Drlg. sh. 2,143 ft.

Woodley Pet. Co. No. 1 Humphries, F. Hardin Sur. Drlg. sh. 76 ft.

Bay City—Matagorda County

Hamman Explin. Co. No. 2 Foote, F. Hall Sur. T.D. 9,110 ft.; comp.; no ga.

North McFaddin—Matagorda County

Ohio Oil Co. No. 1 Carlson, I.&G.N. Sur. No. 2 T.D. 7,729 ft. Recovered 4,560 ft. of oil, 60 ft. of mud and S.W.; T.D. 8,430 ft.; 7-in. csg. 8,430 ft.; W.O.C.

Orange—Orange County

C. L. Brown No. 2-B Chesson, Wm. Dyson Sur, Rng. csg.; T.D. 3,586 ft.

Gulf Oil Corp. No. 3 Granger, Wm. Dyson Sur. Drlg. sd.&grvl. 1,510 ft.

John G. Mayo No. 1 Seales, Wm. Dyson Sur. 10¾-in. csg. 1,000 ft.; T.D. 6,100 ft.; run csg.

Red Bank Oil Co. No. 1 First Natl. Bank, Wm. Dyson Sur. Drlg. sh. 2,837 ft.

Red Bank Oil Co. No. 1 Harmon, Wm. Dyson Sur. T.D. 5,585 ft.; W.O.C.

Union Prod. Co. No. 1 Lutcher Moore Lbr. Co., J. Dyson Sur. 10¾-in. csg. 1,000 ft.; W.O.C.

Segno—Polk County

Gulf Oil Corp. No. 4 Ragan, I.&G.N. Sur. No. 15, 10¾-in. csg. 2,160 ft.; drlg. sh. 5,867 ft.

Gulf Oil Corp. No. 5 Ragan, I.&G.N. Sur. No. 15. Loc.

Humble O. & R. Co. No. 10-B Kirby Lbr. Co., M. Victor Sur. Loc.

Providence Oil Co. No. 1 Wing, I.&G.N. Sur. No. 14. Drlg. sh. 1,037 ft.

Spurger—Tyler County

Republic Prod. Co. No. 14 Hurd & Hurd Sur. Drlg. sh. 7,247 ft.

GULF COAST WILDCATS

Austin County

Crown Cent. Pet. Corp. et al No. 1 Huehner, Renkestolz Sur. Loc.

Brazoria County

Fabriguze et al No. 1 Freeport Sulphur Stephen F. Austin Sur. (Bryan Mound). M.I.M.

Humble O. & R. Co. No. 1 Masterson Geo. Robinson Sur. 13⅜-inch csg. 2,402 ft.; drlg. sh. 5,851 ft.

Humble O. & R. Co. No. 1 Tuttle, H.T.&B. Sur. No. 67, Lots 51 and 52. Cg. sh. 5,969 ft.

Chambers County

Geo. Anderson No. 1 Julia Casey, W. D. Smith Sur. Loc.

F. A. Gillespie et al No. 1 Kirby Lbr. Co., Chambers Co. Sch. Ld. Sur. T.D. 6,523 ft.; 5½-in. csg. 6,471 ft.; perf csg. 6,415-34 ft.; flwg. oil and wsh wtr.; well went dead; screen sanded up; reperf. csg. 6,388-6,400 ft. Failed to flow; installing flow valves; jetting with gas; failed to produce; abd.

Humble O. & R. Co. No. 3 Nancy Fleweilen, Benj. Winfree Sur. T.D. 6,644 ft.; abd.

Galveston County

H. C. Cockburn No. 1 O. H. Hardt-Stephen, F. Austin Sur., 2 mi. N of League City discovery well. Cg. sh. 8,026 ft.

Sun Oil Co. No. 1 R. U. Humphrey, Ruben Barrow Sur. 16-in. csg. 122 ft.; 10¾-in. csg. 2,042 ft.; T.D. 8,206 ft.; run elec. survey.

Harris County

Carroll Oil Co. et al No. 1 N. A. Means, T. J. Green Sur. Drlg. sh. 2,510 ft.

C. L. Dobbins et al No. 1 Ridgeview Farms, D. Steele Sur. 10¾-in. csg. 840 ft.

Jack Frazier et al No. 1 W. T. Carter, Talcott Patching Sur. Loc.

Jack Frazier et al No. 1 Joe Hornberger B. N. Cessums Sur. Drlg. sh. 3,712 ft.

Jack Frazier et al No. 1 Griffith, Adams Smith Sur. Cg. sh. 7,823 ft.; well tried to blow out at 7,760 ft.

H. H. Givens No. 2 F. K. Adone, David Middleton Sur. Drk

Smith & McDannald No. 1 F. Molk, John Gay Sur. 10-in. csg. 1,080 ft.; drlg. sh. 4,857 ft.

Jackson County

Chapman Minerals Corp. No. 1 Bennett ranch, Valentine Garcia Sur. R.U.

Crosby Drlg. Co. No. 1 John Broughton, Patrick Green Sur. Drlg. sh. 3,587 ft.

Jefferson County

British American Oil Prod. Co. et al No. 1 Gladys City, J. A. Veatch Sur (SW flank of Spindletop). T.D. 7,382 ft.; P.B. 3,000 ft.; to sdtrk.

I. E. Harwell No. 1 State, Gulf of Mexico. T.D. 5,840 ft.; D.S. stk.; pulled in two; S.D.

Humble O. & R. Co. No. 13-B McFaddin-State, Sec. 8. Drlg. sh. 2,364 ft.

Humble O. & R. Co. No. 1 M. C. Todd Wm. Carr Sur. T.D. 7,719 ft.; recovered 1,800 ft. P.L.O.; D.S.T. 7,715-19 ft.; run csg.

Matagorda County

Maja Oil Co. No. 1 Robbins, A. Sheppard Sur. R.U.

LEGAL

Pursuant to an order entered in Cause No. 99620-D, styled Lonnie Glasscock vs. T. H. P. Duncan, I offer for sale, as receiver, to the highest bidder for cash, a 20-acre oil and gas lease, Duncan fee, Penn Survey, Gregg County, Texas.

This property has three producing wells, with the possibility of an additional permit.

All bids shall be posted with me, as receiver, on or before January 18, 1939.

For full details and all information concerning the property, communicate with the undersigned.

G. C. Dunn, Receiver
Great National Life Building
Dallas, Texas.

TEXAS

Week Ending November 19

GULF COAST FIELDS

Hastings Field—Brazoria County

Humble O. & R. Co. No. 10 Alexander, H.T.&B. Sur. No. 28. Drlg. sh. 4,227 ft.

Stanolind O. & G. Co. No. 2-C Cecil Brown, W. H. Snyder Sur. Drk.

Stanolind O. & G. Co. No. 6 Froberg, R. A. Magee Sur. Drlg. sh. 1,520 ft.

Stanolind O. & G. Co. No. 5 Roberts, R. A. Magee Sur. T.D. 6,080 ft.; 7-in. csg. 6,079 ft.

Old Ocean—Brazoria County

Commerce Oil Co. No. 1 S. M. Patterson, Polly & Chance Sur. Drlg. sh. 4,037 ft.

Harrison & Abercrombie No. 3 Armstrong Plantation, Polley & Chance Sur. S.D. 8,878 ft.

Harris & Abercrombie No. 4 Armstrong, Polly & Chance Sur. Drlg. sh. 3,126 ft.

Harrison & Abercrombie No. 2 Chenault, C. Breen Sur. Drlg. sd., sh.&L. 10,168 ft.

Harrison & Abercrombie No. 1 R. D. McDonald, C. Breen Sur. T.D. 7,008 ft.; W.O.C.

Sun Oil Co. No. 1 Campbell, Chas. Breen Sur. T.D. 8,581 ft.; D.S. stk.

Sandy Point—Brazoria County

Stanolind O. & G. Co. No. 1 Sharp, C. S. Corbett Sur. No. 12. Drlg. sh. 7,157 ft.

West Columbia—Brazoria County

General Crude Oil Co. No. 1 Campbell Est., J. H. Bell Sur. Drlg. sh. 6,537 ft.

Mike Hogg No. 5 fee, M. Varner Sur. Loc.

Texas Co. No. 29 Abrams, G. Tennille Sur. 10¾-in. csg. 1,168 ft.; drlg. sh.& L. 3,512 ft.

Texas Co. No. 9 Phillips, G. Tennille Sur. 7-in. csg. 5,583 ft.

Cedar Point—Chambers County

Standard Oil Co. of Tex. et al No. 3-118 State. Drlg. sh. 4,627 ft.

Seabreeze—Chambers County

Sun Oil Co. No. 5 Acom, H.T.&B. Sur. No. 103. Drk.

Sun Oil Co. No. 1 Tate, H.T.&B.R.R. Sur. T.D. 8,634 ft.; P.B. 2,000 ft. to sdtrkd. at 2,609 ft.; T.D. 8,581 ft.; D.S. stk.

Turtle Bay—Chambers County

Stanolind O. & G. Co. No. 1-38 State (6,000 ft. S of field in Turtle Bay) 10¾-in. csg. 1,212 ft.; drlg. sh.&L. 7,482 ft.

Hitchcock—Galveston County

Maco Stewart No. 9 fee, J. Spillman Sur. Top sd. 5,131 ft.; 5½-in. csg. 5,143 ft.

Montgomery County

Deep South Pet. Corp. No. 1 Foster Lbr. Co., Preyor Brvan Sur. 10¾-in. csg. 700 ft.; T.D. 7,020 ft.
Housh & Thompson No. 1 E. B. Clary, Wm. S. Allen Sur. T.D. 4,739 ft.; 7-in. csg. 4,736 ft.; drlg. plug.
H. A. Pennington et al No. 1 F. L. Banker, L. M. H. Washington Sur. R.U.
J. Smith et al No. 1 J. V. Scott. F. A. B. Wheeler Sur. S.D. 380 ft.

Orange County

Sun Oil Co. No. 1 Lutcher-Moore Lbr Co., B. Johnson Sur. T.D. 7,867 ft.; P.B.; sdtrkd.; drlg. sd.&sh. 7,930 ft.

Wharton County

Crown Cen. Pet. Corp. et al No. 1 Ruby Babcock, Samuel B. Middleton Sur. Drlg. sh. 4,779 ft.
Humble O. & R. Co. No. 1 Duncan, A. Edgar Sur. 13⅜-in. csg. 2,366 ft.; 9⅝-in. csg. 7,370 ft.; drlg. sh. 7,829 ft.

S. W. TEXAS WILDCATS

Atascosa County

R. C. Stanley No. 1 Schumann, Simon Malone Sur. No. 1069. T.D. 1,722 ft.; perf. csg. 1,650-75 ft.; no report.

Bastrop County

Ira Brown No. 1 T. W. Bailey, John Crutchfield Sur. No. 12. Loc.
R. C. Franklin No. 2 Yarrington. Jose Manuel Bangs Sur. Drlg. 2,167 ft.
A. H. Tarver No. 1 McDuff, Josiah Wilbarger Sur. No. 5. Drlg. 2,556 ft.
Paul Texas and Ashby No. 1 J. T. Grizzard, Andrew Graham Sur. D.S.T. 7,088-23 ft.: recvd. 1 thrib. of mud: S S.O.; 4¾-in. csg. 7,152 ft.; swbg. salty sulfur wtr.: T.D. 7,175 ft. (cor.); P.B. to 7,150 ft.; drlg. plug; tstd. sulfur wtr.; P.B. into csg. to test.

Bee County

Aid and others No. 3 Imogene Hall. Geo. Kerr Sur. T.D. 3,574 ft.; 5⅛-in. csg. 3,574 ft.
Bunn-Texas Co. No. 2 Sparkman, Asa Walker Sur. Drlg. sh. 3,000 ft.
Dirks Brothers No. 1 Robertson. J. G. Morrow Sur. Drlg. sh. 3,410 ft.

Bell County

M. M. Gordon No. 1 Steele, Oliver T Tyler Sur. S.D. 1,201 ft.
G. P. Shelton et al No. 1 Nelson, Michael Griffin Sur. Drlg. sh. 613 ft. No report.

Bexar County

M. S. Blackburn No. 1 Miller, Thos. Barwick Sur. No. 324. S.O. 151-225 ft.: T.D. 469 ft.; Dobie L.; S.O.; S.D.

Blanco County

D. M. Johnston No. 1 Glasscock, W. W McDonald Sur. No. 50. 10-in. csg. 150 ft.; S.D. 501 ft.

Caldwell County

R. H. Dye No. 1 Voight. Wm. Watkins Sur. T.D. 2,749 ft.; abd.
Lincoln Pet. Co. No. 1 Sarah MeBane, Francis Berry Sur. R.U.

Calhoun County

Hiawatha O. & G. Co. No. 2 J. J Romer, J. Ogesberry Sur. Drlg. sh. 9,637 ft.

De Witt County

Howeth and Others No. 1 Albrecht. Vincente Ramons Sur. T.D. 4,314 ft.; abd.
Marjo Oil Co. No. 1 W. D. McCurdy, John Hunt Sur. S.D. 150 ft.; abd.

Duval County

Magnolia Pet. Co. No. 1 Duval Co. Rch. Co., G.C.&S.F.R.R. Sur. No. 189. Drlg. sh. 710 ft.
Magnolia Pet. Co. No. 2 Duval Co. Rnh. Co., G.C.&S.F.R.R. Sur. No. 189. Drlg. sh. 1,150 ft.
Texas Inland Corp. No. 1 Alice Adami, Arnold & Barrett Sur. No. 47. Loc.
W. A. Wagner No. 1 D. J. Welkei, John H. Gibson Sur. No. 497. R.U. and S.D

Edwards County

Evans & Love No. 1 Steve Brown. Blk 6. G.W.T.&P. Sur. S.D. 6,261 ft.

Frio County

Humble O. & R. Co. No. 1 Houston et al, M. Rips Sur. 10¾-in. csg. 1,300 ft.: tstd. S.W., 130 ft. oil and mud; D.S.T. 5,219-26 ft.; T.D. 5,228 ft., L.; S.D.
Humble O. & R. Co. No. 1 Schley, Jos. Travalder Sur. No. 174. 15-min. D.S.T. 3,520-51 ft. tstd. no press.; recvd. 175 ft. mud with oil odor and 180 ft. S. W.; 15-min. D.S.T. 3,595-3,617 ft. tstd. 45 ft. of mud, S.S.O.; recvd. 2,500 ft P.L.O.; D.S.T. 4,720-85 ft.; recvd. 396 ft. sulf. wtr.; D.S.T. Edw. L. 5,271-5,304 ft.; P.B. to 4,800 ft.; 7-in. csg. 4,699 ft.; swbg. 1½ B.O.P.H. plus small amt. of wash wtr. and acd.; P.O.P.; well pmpd. dry on last 4-hr. test; tstg.
Geo. Smith No. 1 Berry, T.C.R.R. Sur. No. 1. Drlg. 4,010 ft.

Goliad County

J. A. English No. 1 Weiss, Cornelius Litts Sur. Cg. sdy. sh. 4,546 ft.
Mills Bennett Prod. Co No. 1 Geo. Rav. Javiano Gomez Sur. T.D. 4,525 ft.; abd.
Steinberge Pet. Corp. No. 1 Albrecht T. Hancock Sur. T.D. 5,313 ft.; 5⅛-in. csg. 5,313 ft.; perf. csg. 5,239-43 ft.; swbg.; pulling screen to clean hole.

Gonzales County

Hochheim Dev. Trust No. 1 Dubose, E. G. Coffman Sur. 10-in. csg. 37 ft.; S.D. 500 ft.
John Hueners et al No. 1 Bauer, R. E. Brown Sur. Drlg. 1,130 ft.

Guadalupe County

Catherine Brown No. 1 Davis, L. A. Patillo Sur. Drlg. 1,550 ft.
Claude Fetty et al No. 1 Ed Felix, Vicente Duran Sur. No. 4. Drlg. 714 ft.
Joseph Holefield No. 1 Claud Brodnax, John King Sur. R.U.
A. D. King No. 1-A Rosenbrock, Vincente Duran Sur. No. 4. T.D. 1,982 ft.; Buda L.; 6-in. csg. 991 ft.; swbg. and flwg. 3 B.O.P.H.; R.U. to pmp.
E. H. Robertson No. 1 Alex Forshage, Eligio Gortari Sur. No. 16. Drlg. sh. 378 ft.
Wellington Oil Co. of Delaware No. 1 Albert Mattke, Wm. H. Smith Sur. No. 62. R.U.
R. A. Williams No. 1 Weber, Guadalupe Torres Sur. T.D. 1,483 ft. (cor.); 4½-in. csg. 1,468 ft.

Hidalgo County

R. E. Hardin et al No. 1 E. M. Car Hidalgo Co. Canal Subd., Lot 8. Blk 8. T.D. 7,509 ft.; perf. csg. 7,440-65 ft.; tstd. 500,000 ft. gas, 9 bbls. dist.; W.P. 1,700 lbs.; S.I. for storage.
Phillips Pet. Co. No. 1 Flores (deep test N of Samfordyce field). T.D. 5,860 ft.; cmtd. 7⅝-in. csg. 5,847 ft (protection string); drlg. sh. 9,710 ft.
Union Sulphur Co. No. 1 Am.-Rio Grande Ld. & Ir. Co. (Mercedes). Cmtd. 7-in csg. 8,417 ft.; T.D. 9,618 ft.; 5⅛-in lnr. set 8,369-9,618 ft.; tstd. S.W. 9,420-30 ft.; made sqze. job; P.B. 9,390 ft.; perf. csg. 9,372-80 ft.; swbd. S.W and gas; perf. csg. 9,347-52 ft.; tstd S.W.; perf. csg. 9,255-60 ft.; tstd. S W.; perf. csg. 9,065-70 ft.; tstd. S.W.; perf. csg. 8,990-9,000 ft.; tstd. S.W perf. csg. 8,920-25 ft.; tstd. S.W.; perf. csg. 8,845-50 ft.; flwd. 24 bbls., 51-grav. dist. per day; ⅝-in. ck.; killed to reperf.; sqz. off perf.; prep. to test 8,500-10 ft.; tstd. gas and S.W.; sqzd perf. csg. 8,480-90 ft.; tstd. gas and S.W.; sqzd.; reperf. csg. 8,075-80 ft., tstd. 450 bbls. fluid, 45 bbls. 22.7 grav. oil; sqzd. off perf.; W.O.C.

Jim Hogg County

Humble O. & R. Co. No. 3 Anna Kelsey Bass, San Raphel gr., 3,732 ft. N of Kelsey field discovery well. Recvd. 500 ft. of oil; 25 lbs. press.; D.S.T. 4,700-56 ft.; drlg. sh. 4,822 ft.
Johnson & Robinson No. 1 Palacios, Mary Montgomery Sur. T.D. 80 ft.
Navarro Oil Co. No. 1 Guerra, Santa Teresa gr. (7,000 ft. SW discovery, Kelsey field). Loc.

Jim Wells County

LaSalle Viejo Oil Co. No. 1 R. Shaeffer Martin Christian Sur., Sec. 11. Tstd. 3 lbs. press.; 2,880 ft. S.W.; D.S.T. 4,881-4,906 ft.; cg. ahd.
Magnolia Pet. Co. No. 1 Samuel Maun, Los Olmos y Loma Blanca gr. R.U.
Shell Pet. Corp. No. 1 C. H. Von Blucher, Lucinda Best Sur. T.D. 7,332 ft.; 7-in. csg. 7,332 ft.; perf. csg. 7,327-30 ft.; cg. sd. S.G. 7,515 ft.
Transwestern Oil Corp. No. 1 B. H. Dunlap. Sur. 179-181 (1½ mi. SW East Premont field). 13⅜-in. csg. 485 ft.; T.D. 5,107 ft.; sdtrkd.; T.D. 5,194 ft.; 8⅝-in. csg. 5,168 ft.; T.D. 6,766 ft.; 7-in. csg. 6,651 ft.; P.B. 5,855 ft.; perf. csg. 5,365-70 ft.; tstd. 1,700 ft. drlg. mud; sqzd. perf.; reperf. csg. 5,365-70 ft.; flwg. 4 B.F.P.H., 50% wash wtr., bal. dist.

Karnes County

M. W. Brown et al No. 1 Vanta, S. G. Hardaway Sur. S.D. 2,145 ft.
Formax Oil Co. No. 1 Pflugger, Erasmus Seguin Sur. S.D. 1,760 ft.
Suttle et al No. 1 McKinney, Luz Navarette Sur. Loc.

Kendall County

Carpenter No. 1 Seidensticker, A. Rodriquez Sur. No. 257. S.D. 518 ft.
C. M. Dewey No. 1 Seidensticker, J. M Cherino Sur. No. 18. S.D. 545 ft.
H. N. Reid No. 1 Marguardt, J. Travuso Sur. No. 150½. S.D. 800 ft.

Kerr County

J. O. Hart et al No. 5-E Jeff Love, J. Martinez Sur. O.W.D.D.; T.D. 5,625 ft.; C.O. hole.
H. C. Starkey No. 1-A Saue. T.W.N.G R.R. Sur. S.D. 100 ft.

Kimble County

Plateau Oil Co. No. 1 E. E. Bolts, S Jones Sur. T.D. 1,863 ft.: P.B. 1,430 ft.; 7-in. csg. 1,415 ft.; pmpg. 3 bbls. oil, 3 bbls. wtr. 4 hrs.; pmps. off; tstg.
Plateau Oil Co. No. 1 S. J. Davis, A Mitchell Sur. No. 44. Drlg. L. 956 ft.
Plateau Oil Co. No. 1 Hunger, J. Dujne Sur. T.D. 1,837 ft.; 5½-in. csg. 1,765 ft.; tstg.

Kinney County

Bob Rose No. 2 Gaebler, Dolores Soto de Beales gr. Drlg. 126 ft.
C. B. Wardlaw No. 1 Standart. Melitor Valdez gr. S.D. 1,290 ft.; bailed some oil; lowering csg.

Kleberg County

Pure Oil Co. et al No. 1 State Ld., Tr. 68, Laguna Madre Bay, Lse. No. 528 T.D. 9,350 ft.; sdtrkd 8,268 ft.: T.D 9,636 ft.; perf. csg. 7,269-78 ft. and 7,248-56 ft.

La Salle County

Lake-Tobian Oil Co. No. 1 O'Connor ranch, Blk 35, Bland & Nelson subd S.D. 2,915 ft.; fsg.

Lavaca County

A. C. McCord et al No. 1 Cora Russek, Blk. 33, J. C. Reynolds Sur. (S. of Ezzell). Spd. and S.D.

Lee County

Fred Pederson et al No. 1 Brown. David Hudson Sur. Cd. L., oil odor, 6,100-12 ft.; cg. Buda L. 6,140 ft.

Live Oak County

R. H. Feltner No. 1 Reed, I.&G.N. R.R Sur. 15. R.U.
Stewart Oil Co. et al No. 2 Nations, Sec. 18, Simmons subd. T.D. 1,490 ft.; abd.

McMullen County

Scarborough & Bigiane No. 1 Matuis Emmitt, Jas. Garner Sur. No. 6. T.D 880 ft.; C.O.
Shumway & Burns No. 2 Shiner, Sec. 53 of Shumway subd. of Shiner rnch. Rec. 500 ft. S.W.; D.S.T. 1,450-62 ft.; D.D.
Taylor Ref. Co. No. 1 Nueces Ld. & Lvstk. Co., B.S.&F. Sur. No. 115. Loc.

Maverick County

Rio Dev. Co. No. 5 State Bnk. & Trst. Co., G.C.&S.F.R.R. Co. Sur. No. 1. S.D. 45 ft.

Medina County

C. H. Gannon et al No. 1 Saathoff, G. L. Hemeken Sur. No. 833. Drlg. serp. 863 ft.
Victor Ziegler No. 1 Paul Haby, Wm. G. Still Sur. No. 1. T.D. 81 ft.

Nueces County

Humble O. & R. Co. No. 1 Michalek, Lots 4 and 5, Sec. 97, Bishop Out Lot subd. Drlg. sh. 6,802 ft.
Phillips Pet. Co. No. 1 Masten, Blk. 146. Delores I. & A. Co. Sur. T.D. 7,765 ft.; abd.
Seaboard Oil Co. No. 1 Ellen C. Wilson, Jose Vicente Lopez de Herrera gr. Drlg. sh. 5,450 ft.
Stanolind O. & G. Co. No. 1 Geo. R. Clark, Nueces Co. Winter Vegetable Gardens. Drlg. sh. 5,376 ft.
Texas Co. No. 1 E. Little et al, Wm Little Sur. 10¾-in. csg. 1,174 ft.; T.D 7,746 ft.; fsg.; P.B. to sdtrk.
Union Prod. Co. No. 1 Minnie Brown (Agua Dulce area). Drlg. sh. 12,478 ft.

Real County

Blakely Smith et al No. 1 Love Ranch H.E.&W.T.R.R. Co. Sur. Drlg. 495 ft. no report.

Refugio County

G. S. I. et al No. 1 Michna, Aldrete 6¼ Lge. Cd. sd. 5,885-96 ft.; tstg.
G. S. I. et al No. 4 Rooke, Aldrete 6¼ Lge. Drlg. sh. 2,637 ft.
G.S.I. No. 2 Spaulding Aldrete, 6¼ Lge. gr. T.D. 6,356 ft.; perf. csg. 5,896-99½ ft.; killed, too much gas; reperf. csg.
Rutherford Oil Corp. No. 1 Neiman, Estaban Lopez Sur. R.U.

Starr County

Circle Oil Co. No. 1 Sabas Olivarez, C C.S.D.&R.G.N.G. Sur. No. 241. 8½-min. D.S.T. 4,560-73 ft.; recvd. 425 ft. oil; 90 lbs. press.; T.D. 4,921 ft.; D.S. T. 4,908-21 ft.; rec. 500 ft. oil; cg. ahd.
Pistol Hill Oil Co. No. 1 Alvarez. J. J. Guiterrez, Porc. 72. Drlg. sh. 470 ft.
Rhinehart and Bowman No. 1 Bowman, J. C. McCarty Sur. Loc.
Sun Oil Co. No. 1 A. Olivarez, C.C.S.D. &R.G.N.G. Sur. No. 239 (Sun field) 7-in. csg. 5,242 ft.; T.D. 5,709 ft.; perf. csg. 4,905-10 ft.; tstg.
Transwestern Oil Co. No. 1 Dallas Jt. Stk. Ld. Bnk., Gavino Silvas Sur. T.D. 1,460 ft.; 9⅝-in. csg. 1,439 ft.

Travis County

Oscar Raesz et al No. 1 I. P. Jones, Rueben Hornsby Sur. No. 17. S.D. 685 ft.

Webb County

Houser & Campbell No. 1 Puig, Edrington subd. of Alberca De Arriba gr. Drlg. sh. 2,118 ft.
O. W. Killam No. 1 A. M. Bruni, Alberca De Arriba gr. Drlg. sh. 1,853 ft.
Magnolia Pet. Co. No. 1 Duval County School Land, Duval County School Land League No. 101. Loc.
Richardson Pet. Co. No. 1 A. M. Bruni, H.&G.N.R.R. Sur. No. 17. Loc.
R. F. Spear No. 1 Benavides, M. Arispe gr., C Blk. 41. R.U.

Williamson County

F. J. Anderson No. 1 Teichelman. Absalam Jett Sur. Drlg. sh.&L. 3,496 ft.
W. O. Caffey No. 1 Fuchs, Francis Bradley Sur. No. 6. S.D. 1,121 ft.
H. H. Coffield and Taylor Ref. Co. No. 1 Galler, H.T.&B.R.R. Sur. No. 7. Drlg. 40 ft.; no report.

Victoria County

Wellington Oil Co. of Delaware No. 1 Boothe, Indianola R. R. Co. Sur. No. 10. S.D. 4,320 ft.

Wilson County

Stapper Oil Co. No. 1 J. McDaniel, L Manchoca Sur. T.D. 3,200 ft.; fsg.

Zapata County

Joe Martinez No. 1 F. Zaragosa, J. V. Borego gr. Cg. sh. 934 ft.

EAST TEXAS

(Border Counties)

Cass County

Harry Hanbury No. 1 Echols et al, SE cor. Echols tr., Wm. Mayes Sur. Tstd. S.W. and S.O. 5,987 ft.; P.B. 5,967 ft. and top Young sd. 5,998 ft.; set 58 ft. of 4½-in. csg. 5,998 ft.; T.D. 6,000 ft.; tstd. dry 6,000 ft.; perf. csg. 5,904-44 ft.; tstd. dry 5,944 ft.; ripped csg. 5,968-73 ft.; swbg. S.W. and S.O.; P.B. 5,840 ft. and ripped csg. 5,795-5,835 ft.; tstd. est. 2,000,000 ft. gas; comp.; 4,500,000 ft. gas and 40 B.P.D. dist.; T.P. 1,300 lbs.; C.P. 1,550 lbs.; T.D. 5,840 ft.

Harrison County

F. H. Barnwell No. 1 Smith, A. P. Hope Sur. Drlg. 1,365 ft.

Marion County—Rodessa

Ark.-La. Gas Co. No. 1-B Braden Unit. Devalt Sur. Set 5½-in. csg. 5,994 ft.; comp.; 30,000,000 ft. gas; open flow; R.P. 2,400 lbs.; used 5,000 gal. acd.; perf. csg. 5,900-60 ft.; T.D. 5,995 ft.
Ark.-La. Gas Co. No. 1 Moselev. Alex. Johnson Sur. Drlg. L.&sh. 3,535 ft.
Bender & Killingsworth No. 2 J.&N.W., Wm. Smith Sur. Drlg. sh. 5,119 ft.
Cable Tool Drlg. Co. No. 1 Howard, John Hanks Sur. Drlg. L.&sh. 3,853 ft.
Cable Tool Drlg. Co. No. 1 Schellinger, John Hanks Sur. Drlg. sh. 1,993 ft.
Fohs Oil Co. No. 1 Davis, Wm. Smith Sur. 5½-in. csg. 6,022 ft.; acd. with 1,500 gal.; T.D. 6,032 ft.; comp.; 120 B.P.D.; ¼-in. ck.; T.P. 100 lbs.; C.P. 800 lbs.
Gulf Prod. Co. No. 2-A Ray, John Hanks Sur. Set 9⅝-in. csg. 1,967 ft.; drlg. anhy. 5,548 ft.
Phillips Pet. Co. No. 2 Henderson, T. Gillespie Sur. Drlg. L.&sh. 3,280 ft.
Shell Pet. Corp. No. 1 Stephenson, G. Perry Sur. 8⅝-in. csg. 1,013 ft.; drlg. sh.&L. 5,125 ft.
Texas Co. No. 2 Braden, Jos. M. Fitzgerald Sur. Drlg. sh.&L. (cor.) 5,651 ft.
Union Prod. Co. No. 10 Hutchinson, A. D. S. Coy Sur. 9⅝-in. csg. 1,019 ft.; drlg. sh.&L. 5,295 ft.

Marion County—Other

Capps Bros. Lbr. Co. No. 2 Stiles, Wall Sur. T.D. 2,394 ft.; swbd. dry; shot with 2 qts. nitro at 2,334 ft.; tstd. dry; S.D. 2,394 ft.
Geyer Oil Co. No. 6 Vincent, C. Davenport Sur. T.D. 2,408 ft.; tstg.

Sabine County

Hugo Allen No. 1 Brooks, Isaac Low Sur. S.D. 5,885 ft.; W.O.

Shelby County

Redditt & Gray No. 1 Pickering Lbr. Co., Childers Sur. Set 7-in. 5,080 ft.

WEST TEXAS WILDCATS

Andrews County

Olson Drlg. Co. No. 1 Lockhart-Brown, 5 mi. W of south end of Fuhrman pool. S.D.O. 4,981 ft.
Texas Co. No. 1-H University, Sec. 4, Blk. 14, Univ. Sur. Fsg. 4,580 ft.
J. W. Tripplehorn No. 1 M. A. Thornberry, Sec. 2, Blk. 42-A. Swbg. and tstg. 4,476 ft.
L. H. Wentz No. 1-L W. F. Cowden, Sec. 3, Blk. 43, T.&P. Sur. Drlg. 4,350 ft.
H. C. Wheeler No. 1 White-Shelton, Sec. 18, Blk. 36-A. P.S.L. Sur. Tstg.; T.D. 4,615 ft.; bailed S.W.

Coke County

Barnett Pet. Co. No. 1 J. R. Mims, Sec. 39, Blk. W. T.&P. Sur. S.D. 1,861 ft.

Culberson County

Quito Oil Co. No. 1 Cameron Lbr. Co., sec. 24, Blk. 61, P.S.L. Sur. S.D.R. 945 ft.

Dawson County

Daw-Tex. Oil No. 1 J. E. Neely, Sec. 28, Blk. 35, T.&P. Sur. Loc.

Dickens County

Bond D. Jones No. 1 Ford et al, I.&G.N. Sur. S.D. 3,485 ft.
Humble O. & R. Co. No. 1 Matador Ld. & Cattle Co., Sec. 26, Blk. 1, Shock & Arnold Sur.; 6,000-ft. test. Loc.

Ector County

Fields et al No. 1 Owenwood, sec. 6, Blk. 44, T.&P. Sur. S.D.O. 4,501 ft.

El Paso County

Tri-State Oil Co. No. 1 Kinkel. S.D. 3,571 ft.

Gaines County

H. J. Brown No. 1 A. L. Wasson, Sec. 51, Blk. AX, P.S.L. Sur. T.D. 4,921 ft.; comp.; 790 B.O.P.D.

Garza County

Gulf Oil Corp. No. 1 Swanson, Sec. 25, Blk. 2, H.&G.N. Sur. P.B. 7,400 ft.; rng. 7-in.

Glasscock County

Crusader Pet., Inc., No. 1 A. D. Neal, Sec. 20, Blk. 33, T.&P. Sur.; 3,200-ft. test. Drlg. 790 ft.

Hockley County

Snowden & McSweeney No. 1 A. A Slaughter. Zavalle C.S.L. Sur., Lge 35, Lab. 74. D.&A. 5,096 ft.
The Texas Co. No. 1-B Mallett Lands Lab. 1, Lge. 52, Scurry C.S.L. Sur Flwd. 185 B.O. in 19 hrs.

Howard County

Parten & Strickland No. 1 O'Daniel, Sec. 39, Blk. 30, T.&P. Sur. D.&A. 2,805 ft.

Hudspeth County

Haymon Krupp Oil & Ld. Co. No. 1 Thax-

ton, SE¼ Sec. 34, Blk. 74, Twp. 8, U.R. 5-in. 5,115 ft.; T.D. 5,135 ft. Haymon Krupp No. 1 Briggs, sec. 24, Blk 73, Twp. 7, T.&P. Sur. Drlg. 5,340 ft.

Jeff Davis County

Joiner Oil Corp. No. 1 Jones-Coffield, S.D. 3,742 ft.

Lynn County

John L. Baldridge No. 1 Alma Lbr. Co., Sec. 151, H.E.&W.T. Sur. W.O.C. 4,450 ft.

Menard County

C. D. Haggerty No. 1 Callon, sec. 36, Jin. Franz Sur. Tools out; making 500,000 ft. gas 1,270 ft.; S.D. 1,270 ft.

Pecos County

J. R. Bell No. 1-C Gulf-Shearer, Sec. 111, Blk. 10, H.&G.N. Sur. M.I.M.

E. B. Carruth Tr. No. 1 J. H. Tippett Sec. 4, Blk. 194, G.C.&S.F. Sur. Abd. loc.

Humble O. & R. Co., No. 1 A. H. Robertson, Sec. 27, Blk. OW, T.C.R.R. Sur. D.&A. 5,368 ft.

O. E. Schade No. 1 Neville, Sec. 72, Blk. 194, G.C.&S.C. Sur.: 2,500-ft. test. Drlg. 1,595 ft. last report.

O. E. Schkade No. 1 Otis Garrett, Sec. 59½, Blk. 8, H.&G.N. Sur. Spd. and S.D.

Thomason Prod. Co. No. 1 Notions, Sec. 1, Blk. 105, W. P. Howard Sur. Drlg. 870 ft.

S. Thompson No. 1 Elsinore Cattle Co. Sec. 54, Blk. D, G.C.&S.F. Sur. C.O. bridge 6,100 ft.; T.D. 7,342 ft.

Reagan County

John W. Emch No. 1 T.&P. Ld. Trust Sec. 203, Blk. 1, T.&P. Sur. P.B. 2,665 ft.; rng. tbg.

Reeves County

Ohio Oil Co. No. 1 Papham, Sec. 18, Blk. 54, T.&P. Sur. Drlg. 5,330 ft.

Scurry County

Coffield & Guthrie No. 1 First Natl. Bk., Snyder, Sec. 29, Blk. 97, H.&T.C. Sur. M.I.M.

Coffield & Guthrie No. 1 E. E. Spears et al, Sec. 130, Blk. 97, H.&T.C. Sur. Tstg. 2,366 ft.; P.B. depth.

Sterling County

J. W. Sward No. 1 Brennand, Sec. 107, Blk. 2, H.&T.C. Sur. S.D.O. 3,011 ft.

Tom Green County

Spinner No. 1 Reed, Mason Ferry Ranch Sur. Fsg. 5,118 ft.

J. B. Watson No. 1 Llano, C.S.L. Sur., Sec. 16, T.D. 705 ft.; D.&A.

Upton County

White & Wilson No. 1 Webb, Sec. 176, Blk. 1, C.C.S.D.&R.G.N.G. Sur. S.D.; csg. 150 ft.

Val Verde County

A. W. Little No. 1 R. W. Sellers, Sec. 34, H.&G.N.R.R. Sur. 1,500-ft. test. S.D.O. 1,200 ft.

Ward County

Herschel M. Jaffe No. 1 Viola Meyers, Sec. 17, Blk. 32, H.&T.C. Sur. Drlg. 2,420 ft.

Herschel M. Jaffee No. 1-B Viola Myers, Sec. 17, Blk. 32, H.&T.C. Sur. S.D. 254 ft.

Robt. E. Mitchell No. 1 Allen, Sec. 7, Blk. 32, H.&T.C. Sur. Drlg. 35 ft.

Winkler County

S. W. Richardson No. 1-A J. M. Broshara, Sec. 22, Blk. 77, P.S.L. Sur. Drlg. 3,916 ft.

J. R. Sharp No. 2 Sharp-Crume, Sec. 7, Blk. B-2, P.S.L. Sur. Loc.

Yoakum County

J. E. Mabee No. 1 N. W. Willard, Sec. 741. Drlg. 4,850 ft.

Shell Pet. Corp. No. 1 J. M. Rutta, Sec. 743, Flwd. 2 B.P.H., 2% oil, 5,266 ft.

S. C. Yingling et al No. 1 Nettie Barrier, Sec. 6. S.D.O. 5,501 ft.

TEXAS PANHANDLE

Collingsworth County

Tinsley, White & Knoll No. 1 Frank Knoll, Sec. 62, Blk. 16, H.&G.N. Sur. C.&P.

White No. 1 Wischamper, S.D. 2,263 ft. Johnson No. 1 Taylor. S.D. 5,650 ft.

Deaf Smith County

Uscan No. 1 Farwell. C.O. 5,050 ft.; T.D. 5,650 ft.

Dickens County

Bond Jones No. 1 Foard, I.&G.N. Sur. Rng. 8¼-in. csg. 3,507 ft., T.D.

Humble O. & R. Co. No. 1 Matador, Sec. 26, Blk. 1, Shock & Arnold Sur. Contract depth 6,000 ft.

Donley County

Robinson No. 1 Kuteman, Sec. 88, Blk. 20, H.&G.N. Sur. Set 6-in. csg. 3,700 ft.

Floyd County

Mills Bennett No. 1 Montgomery, F. J. Latham Sur., 6 mi. S of Floydada. S.D. 5,960 ft.

Gray County

English No. 1 Eudy. S.D. 3,977 ft.

Tripplehorn No. 2 Webb, Sec. 12, Blk. A-9, H.&G.N. Sur. Loc.

Kent County

B. Dolman et al No. 1 C. V. O'Keefe, Sec. 50, Blk. 1, 15¼-in. csg. set at 140 ft.; drlg. at 180 ft. last report.

Lipscomb County

M. C. Tieman No. 1 Spangle, Sec. 626, Blk. 43, H.&T.C. Sur. S.D. 1,880 ft.

Potter County

Sinclair Prairie Oil Co. No. 1 Bush, Sec. 23, Blk. 6, B.S.F. Sur., about 3 mi. N of Amarillo; 8,500-ft. test. Drlg. 5,325 ft.

Roberts County

Whitlock No. 1 Cunningham. Drlg. 3,012 ft. (last report).

E. C. TEXAS WILDCATS

Cherokee County

C. C. Lanier No. 1 A. T. O'Neal, J. M. Procella Sur., 3 mi. E of Troup. Loc.

Falls County

W. H. Mahon No. 1 V. H. Moore, N. K. Robinson Sur., between Lott and Rosebud. Spd. and S.D.

Grayson County

Jim McMurrey No. 1 Dr. T. J. Long, J. Garland Sur., 2 mi. S of Collinsville; 4,000-ft. test. Drlg. 3,210 ft.

Henderson County

Tide Water-Seaboard-Humble No. 1 Sadie Starr McGee, R. Acosta Sur., 3½ mi. NE of Murchinson. Drlg. 3,762 ft.

Houston County

John G. Mayo No. 1 E. C. Lively, S. Rogers Sur., 4 mi. NE of Grapeland. Cg. 5,790 ft.

Wynne Drlg. Co. No. 1 May Price, T. Strother Sur., 4 mi. W of Grapeland. Drlg. 70 ft.

Kaufman County

Sam Knoerr No. 1 J. B. Hunter, P. Walker Sur., 5 mi. S of Terrell. Drlg.

W. S. McGee No. 1 Pritchett, J. Hendricks Sur., 7 mi. W of Mabank. Set 5½-in. 3,100 ft.; prep. drlg. plug 3,100 ft.

J. F. McLaughlin No. 1 Wood-Nash, J. C. Cortez Sur., ¾ mi. SE of Scurry. Drlg.

Lamar County

Dahl Bros. & Barr No. 2 McQuiston, R. Russell Sur., ½ mi. N of Paris. S.D. 30 ft.

McLennan County

C. E. Porter No. 1 B. D. Burchett, De la Vega Sur., just SE of Waco. S.D. 160 ft.

Lisle Steele No. 1 C. H. Cherry, M. Martinez Sur., 4¼ mi. SE of Waco. S.D. 1,300 ft.

Navarro County

Wilson No. 1 Healer, J. Lothan Sur., 4 mi. W of Richland. D.&A. 3,049 ft.

Rains County

McKinley & Hastings No. 1 McTaggert, B. Milder Sur., 1 mi. W of Emory. S.D. 30 ft.

Red River County

Bentley-Sheppard & Stevens No. 1 So. Pine Lbr. Co.; G. S. Parks sur.; 17 mi. N of Clarksville. S.D. 71 ft.

Daniels et al No. 1 J. J. Gaston, J. Guest Sur., 2 mi. S of Detroit. S.D. 1,100 ft.

Smith County

J. H. Thomason No. 1 J. W. Bartlett, R. H. Stewart Sur., ½ mi. SE of Jamestown. Cg. 1,722 ft.

Trinity County

C. D. Davis No. 1 J. D. Gibson, A. Donavan Sur., 4 mi. NE of Trinity. Gas blow out 148 ft.; W.O.C. 232 ft.

Van Zandt County

W. S. King No. 1 Edna W. Watson, M. G. Whitaker Sur., 5 mi. S of Grand Saline. S.D. 2,600 ft.

NORTH TEXAS WILDCATS

Archer County

Sinclair Prairie No. 1 J. A. Hood, Blk. 18, A.T.N.C.L. Sur. 6⅝-in. cmtd. 4,954 ft.; T.D. 5,180 ft.; P.B. 4,976 ft.; W.O.C.

Thurmond & Lipscomb No. 2 L. F. Wilson, E. Hall Sur. A-682. 6⅝-in. 4,235 ft.; S.S.O. 4,235-46 ft.; W.O.C.

Westmount Oil Co. No. 7 T. J. Dempsey, Sec. 10, D.C.S.L. Sur., O.W.D.D. Perf. csg. 4,139-44 ft.; bailing wtr. and tstg.

Baylor County

British American Oil Prod. Co. No. 1 F. C. Green, T.&N.O. Sur., Sec. 215. Loc.

Clay County

Walter Gant No. 1 Bryant Edwards, S. C. Beldon Sur. A-12; 6,000-ft. test. 6⅝-in. 5,990 ft.; S.L. 5,994-6,016 ft.; T.D. 6,354 ft.; P.B. 6,069 ft. and shot csg.; treating; acd. 5,794-5,839 ft. through perfs.

Cooke County

Denver P. & R. Co. No. 1 D. B. Allred De Los Santos Sur. A-894. Drlg. 4,180 ft.

L. C. Heydrick No. 1 F. J. Franklin et al, L. Raney Sur. A-878. Drlg. 2,370 ft.

Sinclair Prairie No. 2 J. M. Best, T. Toby Sur. A-1054. Drlg. 4,070 ft.

Sussex Oil Corp. No. 1 W. R. Cannon, J. Bradshaw Sur. A-31. 6⅝-in. 1,705 ft.; W.O.C.

Foard County

Helmerich & Payne No. 1 Powers, H.&T.C. Sur., Blk. A. Loc.

Grayson County

O. L. McDougal No. 1 Jackson, H. Coffee Sur., Abst. 204; 4,000-ft. tst. Drlg. 560 ft.

J. H. McMurray No. 1 T. J. Long, James Garland Sur. A-441. C.O. 3,184 ft.

C. E. Marshall No. 1 F. Christman, M. Ahalt Sur. A-1427. Spdg.

Jack County

Marion Church No. 1 S. E. McClure, Sec. 2669, T.E.&L. Sur. Drlg. 1,580 ft.

Noah Daves No. 1 K. D. Baker, Sec. 2709, T.E.&L. Sur. 4,000-ft. test. Recem. 10-in. at 90 ft.; S.D.O. 2,320 ft.

Southern O. & G. Co. No. 1 A. Eason, A. D. Kennard Sur. A-328. Drlg. 1,285 ft.

Montague County

Lobban et al No. 1 Henry Payne, Wm. Donoho Sur. A-178. Spudded.

H. H. Powell No. 1 Arch Durhan, W. J. Wagoner Sur. A-936. S.D.O. 1,800 ft.

Sinclair Prairie No. 1 Hill, Blk. 71, L. C.S.L. Sur. Drlg. 1,880 ft.

Youngblood & Foree No. 1 J. A. Burnett, J. Lenow Sur. A-433. 6⅝-in. 4,139 ft.; S.S.O. 4,139-45 ft.; test. S.W. & show oil; S.D.O.

Wichita County

F. S. Freeland No. 1 J. D. Cooper, H. Hastie A-92; 4,000-ft. test. Loc.

Wise County

H. Jackson No. 1 F. Neeley, Blk. 29, Matagorda Co. Sch. Ld. Spud. & S.D.

H. M. Muse No. 1 F. F. Kaker, Blk. 16, Matagorda Co. Sch. Lds. Pits.

Young County

Horwitz & Oldom No. 1 C. J. Taach B, Sec. 248, T.E.&L. Sur. 6⅝-in. 4,113 ft., S.D.O. 5,090 ft.

Italio Pet. Corp. No. 1 H. M. Donnell, Sec. 4, S.P.R.R. Sur. O.S. 3,390-95 ft.; tstg.; 5⅞ 3,382 ft.

Long & Lupton No. 1 A. Crouch, I.&G. N. Sur. A-1460. Drlg. 2,300 ft.

Pitzer-West No. 1 Robt. Bulloch, J. P. Hume Sur., Abst. 140. Drlg. 1,140 ft.

WEST CENTRAL TEXAS DISTRICT

Brown County

H. P. Evans No. 1 C. M. Kilgore, Robt. Mitchell Sur., No. 141. S.D.O. 1,134 ft.

Evans No. 1 J. F. Davis, S. Tull Sur., No. 894. Sp. and S.D.

Callahan County

Dobbs Oil Co. No. 1 Finley, sec. 75, Bayland Orphans Home Ld. Fsg. 1,785 ft.

J. C. Jackson et al No. 1 T. J. Thompson, Sec. 30, B.B.B.&C. Sur. T.D. 1,690 ft.; U.R.

Coleman County

Arcadia Ref. Co. No. 1 W. R. Roberts, D. J. Holt Sur. Fsg. 2,685 ft.

Lynn & Jordan No. 1 Eades, J. West Sur., 7 mi. SW of Santa Anna. S.D. 415 ft.

Comanche County

Comanche O. & G. Co. No. 1 J. E. McGuire, C. Rockefeller Sur. No. 3. Drlg. 1,600 ft.

E. T. DeArman No. 1 Underwood, Sec. 37, D.&D.A. Sur., Abst. 624. T.D. 2,764 ft.; P.B. 2,662 ft.; est. 20 B.O.P.D.; tstg. 2,764 ft.

Loraine No. 1 Carlisle, Sec. 9, Blk. 2, H.&T.C. Sur. M.I.M.

Eastland County

J. F. Baker No. 3 N. T. Mulloy, Wm. Ahrenbeck Sur., Abst. 700. C.O. 3,087 ft.

Dobbs Oil Co. No. 1 Greer, J. E. Hardy Sur., Ellenburger test. S.D. 1,738 ft.

Hickok P. & D. Co. No. 1 Penn, Sec 468, S.P. Sur. Drlg. 2,900 ft.

Erath County

Wayne Chandler No. 1 Chandler, J. W. Moore Sur., Abst. 571. Drlg. by bit 2,826 ft.

Collard No. 1 W. L. Payton, H. Pierson Sur. No. 1, Abst. 1105. S.D. 185 ft.

Hamilton County

Wallace & Vickers No. 1 C. C. Lund, J. P. Bailey Sur. 51. S.D. 1,325 ft.

Haskell County

Roeser & Pendleton & I.T.I.O. No. 1 M.O. Daugherty, Sec. 19, Wise C.S.L. Sur. S.D.O. 4,606 ft.; prep. perf.

Sawyer Drlg. Co. No. 1 A. J. Rowland Est., Sec. 5, Blk. 3, H.&T.C. Sur., 18 mi. E of Stamford. Fsg. 4,890 ft.

Jones County

Brown Eagle Oil Co. No. 1 Haynes, Sec. 191, Lemuel Andrews Sur. S.D.O. in sd. 2,283 ft.

Brown Eagle No. 1 Waterson, Andrews Sur. No. 191. T.D. 2,283 ft.; S.D.

S. C. Herring No. 1 B. L. Ellis, 330 ft. fr. N and E lines, SE¼ Sec. 8-15, T.&P. Sur. Loc.

Humble O. & R. Co. No. 1 Sam Lewis, 1 mi. S of Hawley pool, C. E. Dewitt Sur. No. 254. Drlg. 1,980 ft.; last report.

S. B. Roberts Co. No. 1 Roy E. Prichard, 205 ft. fr. S L, 2,428 fr. E L, J. E. Cockrell subd. 2, G. Martinez Sur. 195. Loc.

Stiles et al No. 1 Cook, Sec. 89, B.B.B &C. Sur., western part of county. U.R. 3,403 ft.; H.F.W.

Ungreen & Frazier No. 1 Griffin, Sec 188, B.B.B.&C. Sur. Tstg. est. 200 bbls.; 3,250 ft.

Nolan County

Chas. E. Peddicord No. 1 Tipton, Sec. 43, Blk. 19, T.&P. Sur. Drlg. 2,770 ft.

Union Oil Co. No. 1 J. D. Pepper, Sec. 51, Blk. 21, T.&P. Sur.; 5,000-ft. test. 6 mi. SW Sweetwater. Drlg. 2,730 ft.

Palo Pinto County

Goble-More Drlg. Co. No. 1 M. B. Costello, R. R. Williams Sur., Abst. 896. S.D.O. 2,330 ft.

Parker County

Bartrug & Burns No. 1 Lankin, Sec. 346, T.&P. Sur. S.D. 358 ft.

Glen Rose No. 1 H. D. Groves, SW¼ Sec. 350, T.&P. Sur. S.D., T.D. 685 ft.

Shackelford County

Joe DeGrazier No. 1 Harbough, E cen. part of county, Sec. 1563, T.E.&L. Sur. 4,500-ft. test. S.D. 3,894 ft.

Fox & Rudd No. 1 Shotwell, Sec. 59, B. A.L. Sur. Prep. test; flwd. 10 B.P.H.; 1,020-32 ft.

R. H. Gordon & Frank Pethybridge No. 1 C. B. Snyder, 330 ft. fr. N and E lines, Sec. 38, L.A.L. Sur.; 4,500-ft. test. Est. 20 to 50 B.O.P.D.; T.D. 3,660 ft.; S.D. 4,293 ft.

J. G. Hammond No. 1 Coker, 1,620 ft. fr. S line and 1,020 ft. fr. W lines, Sec. 159, B.B.B.&C. Sur. D.&A. 5,222 ft.

NORTH MISSISSIPPI

Calhoun County

L. C. Lucas No. 1 E. C. Boland, NW cor. SW Sec. 9-22n-9e. S.D. 755 ft.

L. C. Lucas No. 1 E. C. Boland, 400 ft. E and 500 ft. S, NW cor. SW Sec. 9-22n-9e. S.D. 751 ft.

S. & O. Properties, Inc., No. 1 G. C. Cooner, SE NE Sec. 12-24n-8e. S.D. 2,300 ft.

George County

Cleve Love et al No. 2 J. J. Newman Lbr. Co., C SW Sec. 9-1s-8w. S.D. 7,038 ft., red beds.

Harrison County

Big Ridge Oil Co. No. 1 Hingin, Sec. 13-7s-10w. S.D. 2,700 ft.

Hinds County

G. Jefferys No. 1 Gaddis Farms, Inc., NW cor. SE Sec. 26-7n-4w. S.D. 3,448 ft.

G. Jefferies No. 1 Gaddis Farms, Inc., 700 ft. W line, 545 ft. N line, SE¼ Sec. 26-7n-4w. S.D.; Wilcox 3,448 ft.

Cleve Love et al No. 1 S. F. Johnson, NE cor. SE¼ sec. 29-6n-1w. Set 7-in. csg. 3,355 ft.; drlg. 4,580 ft.

Cleve Love et al No. 1 S. F. Johnson, NE cor. Sec. 29-6n-1w. Drlg. hd. sd. 4,425 ft.

Southern Nat. Gas Co. No. 1 Progressive Realty Co., SE SW Sec. 35-6n-4w. Drlg. hd. rd. sh. 8,270 ft.

Southern Nat. Gas Co. No. 1 Progressive Realty Co., SE SW Sec. 35-6n-4w. Top ch. 6,600 ft.; T.D. 8,458 ft.; abd.

Montgomery County

Dr. T. H. Chichester No. 1 Mitchell, Sec. 36-20n-7e. Drlg.

Poniotoc County

Waldrop et al No. 1 Bray, Sec. 17-11s-1e. S.D. 310 ft.

Rankin County

Love Pet. Co. No. 3 Gulf State Creosote Co., Sec. 36-5n-2e. Drlg. bl. sh. 2,273 ft.

Canadian Fields

(Continued from Page 98)

On the Watson structure, Mar Jon Oil Co. No. 3, LSD 3, Section 4-10-2w5, is shut down at 6,130 feet, after striking an additional gas flow.

On the Savannah Creek structure, Anglo-Canadian Oil Co. No. 1, SW quarter Section 20-14-4w5, has derrick up.

Grease Creek Test

On the Grease Creek structure, north of Calgary, a Vancouver syndicate is making location for No. 1 test. Some 11,500 acres in a compact block have been unitized for purposes of the test, and equipment will be moved in as soon as definite location is made.

Castle River Test

On the Castle River structure, in the Pincher Creek area, southern Alberta foothills, Anglo-Canadian Oil Co. No. 1 Castle River, LSD 4, Section 11-6-1w5, has spudded. Location is on a fold about

4 miles west of Weymarn Petroleums No. 2, LSD 5, Section 7-6-1w5, which got good shows of light crude and gas in the upper formations, but was not carried to the Madison. Location is on acreage subleased from Paul von Weymarn, who is arranging for resumption of Weymarn No. 1 from 6,432 feet. A previous test drilled by Alberta Gas & Fuel Co. on the Castle River structure was abandoned at 3,000 feet after encountering the Belly River-Benton structure at 2,000 feet.

Border Fields

In the Taber field, southern Alberta, North Taber Royalties No. 1, LSD 7, Section 10-11-15w4, is below 2,220 feet with the Sunburst sand expected around 3,100 feet. Border Petroleums No. 1, LSD 5, Section 32-19-17w4, is running 8-inch casing to 2,800 feet. An oil horizon is expected around 3,200 feet.

On the Bridge-Dome structure, Anglo-Canadian No. 1 Milk River, LSD 10, Section 4-2-13w5, is shut down after cementing at 13⅜-inch casing at 1,950 feet. Production is expected in the Sunburst sand between 2,350 and 2,600 feet.

West Petroleums, Ltd., of Toronto is completing preliminary geological surveys of the Blood Reserve area in southern Alberta, in preparation for active drilling which will likely be started next spring.

Atlee Gas Strike

A test by the Prairie Farm Rehabilitation Administration at Regina, near Atlee, Alberta, encountered gas under heavy pressure at 901 feet, with approximately 2,000,000 feet open flow. The well was started as a shallow test for gas to provide cheap fuel for pumping engines in connection with a new irrigation project. Atlee is south of the Red Deer River, on the Bassano-Empress line of the C.P.R. and about 36 miles west of the Saskatchewan boundary.

Saskatchewan Operations

In west-central Saskatchewan, Vera Oilfields No. 2, LSD 5, Section 23-41-24-w3, bottoming at 2,120 feet with good shows of crude, is testing production. The company, in association with Franco Oils, Ltd., is making arrangements for additional development.

Warwick Shallow Field

In the Warwick shallow field, Lambton County, Ontario, completions include eight producers and three dry holes, the latter all where the formation dips along the north end of the field. Hussey-Polley-Dale-Fairbank No. 1, William Woods farm, Lot 21, Concession 4, Warwick Township, encountered top show oil with considerable gas at 410 feet and is making pumping tests before going to the lower lime.

Farther east, F. R. MacIntosh No. 1, A. S. Cameron farm, Lot 25, Concession 4, finished in water at 500 feet after getting a small show of crude and has been plugged and abandoned. Fred Davidson has moved his rig to the Mrs. Kadey farm, W half Lot 21, Concession 5, for a test for Whitfield N. Alley and associates. F. R. Hambly No. 1, Thomas Westgate, Sr., farm, Lot 24, Concession 4, finished a dry hole below 500 feet, and was abandoned. Archie Treleaven No. 1, F. Morgan farm, Lot 25, Concession 4, drilled by Bill McCallum, finished dry, and has been pulled and plugged.

Albert Randall has moved an outfit from Onondaga to the W half Lloyd Easterbrook farm, Lot 26, Concession 5, for a test for Wilson-Sullivan Syndicate. Another test for the Wilson-Sullivan interests is being drilled by George Willets of Bothwell on the James A. Brush farm, Lot 30, Concession 5, this being the most easterly test in the field. Another Willets outfit is starting a test on the John O'Neill farm, Lot 28, Concession 4. Ernest Kells of Petrolia is starting a test on the Brown farm, Lot 26, Concession 6, south of the C.N.R. tracks and about a mile south and somewhat east of the discovery well. Bullen, Corey & McCallum No. 1, drilled by W. J. Hussey in Lot 22, Concession 5, is finishing. Bullen, Stonehouse & Rose No. 1, Henry Rivers farm, Lot 29, Concession 4, is finishing.

Bert Wilson of Sarnia is moving his heavy-duty cable tool outfit from the Petrolia flats for a deep test of the Warwick field.

Manitoulin Prospects

Following an oil strike by a Sault Ste. Marie international syndicate at Manitowaning, on Manitoulin Island, extensive leasing is being carried on. The area has been regarded as a good oil prospect for many years, and some years ago a report was made on it for the Geological Survey of Canada by Dr. M. Y. Williams.

Oil springs were first discovered by Jesuit missionaries to the Indians about 1648 just east of Sturgeon Point and about 10 feet from the water's edge. The first geological work was done in 1847, and since 1860 about 72 wells have been drilled in various parts of the island. A well in 1860 struck oil at 300 feet. The Manitoulin Oil Co. drilled five wells near the original oil springs, getting a small pumping production which failed to hold up. In 1905 Northern Oil & Gas Co. of Chicago drilled five small producers and three dry holes about 2 miles southeast of Wekwemikong; and in 1909 Brake & Johnson drilled two dry holes in Gore Bay and two producers aggregating 100 bbls. flush production. Production comes from the Trenton formation which outcrops toward the north end of the island, and the most recent geological opinion is that favorable results are most likely toward the south, where other rocks overlie the Trenton.

GULF COAST WATER SHIPMENTS, AUGUST, 1938

Sabine District

Company—	Coastwise Crude	Coastwise Refined	Export Crude	Export Refined	Total
Atlantic P. L. Co.:					
Atreco	1,588,414	.....	.....	.....	1,588,414
Atlantic Ref. Co.:					
Atreco	.....	181,602	.....	227,917	409,519
Burton Terminal:					
Lake Charles	285,964	.....	.....	.....	285,964
Continental Oil Co.:					
West Lake	317,691	.....	.....	.....	317,691
Gulf Oil Corp.:					
Port Arthur	412,176	2,599,686	.....	427,717	3,439,579
Magnolia Pet. Co.:					
Beaumont	952,750	2,065,914	70,465	.....	3,089,129
Lockport	96,760	.....	.....	.....	96,760
Pure Oil Co.:					
Smith Bluff	.....	1,219,023	.....	.....	1,219,023
Shell Pet. Corp.:					
Haymark	.....	.....	91,161	.....	91,161
Stanolind Crude Pur.:					
Beaumont	384,491	.....	442,008	.....	826,499
Sun Oil Co.:					
Beaumont	1,318,123	.....	55,985	.....	1,374,108
Texas Co.:					
Port Arthur	1,036,288	2,721,040	540,444	1,190,968	5,488,740
Union Sulphur Co.:					
Rose Bluff	365,104	.....	.....	.....	365,104
Total	6,757,761	8,787,265	1,200,063	1,846,602	18,591,691

Rio Grande Valley District

Valley P. L. Co.:					
Port Isabel	.....	95,326	.....	.....	95,326
Total	.....	95,326	.....	.....	95,326

Houston-Galveston District

Atlantic P. L. Co.:					
Texas City	201,547	2,372	.....	.....	203,919
Independent Term. Co.:					
Texas City	.....	140,900	.....	122,515	263,415
Humble O. & R. Co.:					
Baytown	.....	3,368,994	.....	1,089,975	4,458,969
Texas City	351,106	.....	181,247	.....	532,353
Republic O. & R. Co.:					
Texas City	.....	357,600	.....	210,000	567,600
Shell Pet. Corp.:					
Houston	.....	1,418,718	275,222	589,061	2,283,001
Sinclair Ref. Co.:					
Houston	1,154,158	.....	.....	.....	1,154,158
Texas Co.:					
Houston	533,713	.....	184,434	.....	718,147
Miscellaneous:					
Texas City	174,442	1,733,379	462,827	.....	2,370,648
Houston	255,291	.....	103,526	.....	358,817
Total	2,670,257	7,021,963	1,207,256	2,011,551	12,911,027

Mississippi River District

Shell Pet. Corp.:					
Norco	.....	8,934	.....	44,793	53,727
Standard Oil Co. (La.):					
Baton Rouge	335,918	1,086,944	.....	618,164	2,041,026
Texas Co.:					
Amesville	76,313	.....	80,138	.....	156,451
Miscellaneous	81,266	.....	.....	.....	81,266
Total	493,497	1,095,878	80,138	662,957	2,332,470

Corpus Christi District

Atlantic P. L. Co.:					
Harbor Island	504,289	.....	264,718	.....	769,007
General American:					
Corpus Christi	72,964	378,423	463,376	613,533	1,528,296
Humble O. & R. Co.:					
Harbor Island	2,372,755	.....	.....	.....	2,372,755
Texas P. L. Co.:					
Corpus Christi	148,908	.....	.....	422,770	571,678
Miscellaneous	282,830	390,632	825,250	556,607	2,055,319
Total	3,381,746	769,055	1,553,344	1,592,910	7,297,055

Total by Districts

District					
Sabine	6,757,761	8,787,265	1,200,063	1,846,602	18,591,691
Rio Grande Valley	.....	95,326	.....	.....	95,326
Mississippi River	493,497	1,095,878	80,138	662,957	2,332,470
Corpus Christi	3,381,746	769,055	1,553,344	1,592,910	7,297,055
Houston-Galveston	2,670,257	7,021,963	1,207,256	2,011,256	12,910,732
Total	13,303,261	17,769,487	4,040,801	6,113,725	41,227,274

Crude Oil Price Changes

Gulf Refining Co. effective November 15, announces that its price for crude oil in Anahuac, Hull, Pierce Junction and Orange on the Texas Gulf Coast will be as follows: Below 20 gravity, 74 cents; 20-20.9 gravity 77 cents, with 3-cents added for each degree up to and including 26-26.9 at 95 cents; then 2 cents added for each degree up to 40 degrees and over at $1.23. This is a cut in price of 5 cents per barrel on each grade in Hull, Pierce Junction and Orange compared with the price first set by Humble Oil & Refining Co. on October 11, but the prices in Anahuac are the same as those posted by Gulf on October 12.

Rocky Mountain Runs

Production estimates for week ended November 19, 1938:

	Barrels
WYOMING	
Salt Creek	15,340
Big Muddy	1,180
Badger Basin	150
Black Mountain	130
Byron	2,980
Cody dome	90
Cole Creek	110
Dallas Derby	350
Dewey dome	130
Dutton Creek	50
Elk basin	630
Frannie	1,880
Garland	3,130
Grass Creek	2,540
Hidden dome	100
Hudson	230
Iron Creek	30
LaBarge	870
Lance Creek	15,590
Lost Soldier	1,520
Mahoney	120
Medicine Bow	3,520
Mule Creek	90
Midway	30
Oregon basin	5,000
Osage	850
Quealy dome	760
Rock River	1,420
Spindletop	40
Poison Spider	280
Teapot	20
Warm Springs	150
Wertz	1,490
Total Wyoming	60,800
MONTANA	
Border	60
Cat Creek	580
Cut Bank	8,080
Dry Creek	360
Kevin-Sunburst	3,590
Pondera	520
Total Montana	13,190
COLORADO	
Florence	150
Fort Collins and Wellington	290
Wilson Creek	260
Iles dome	2,030
Moffatt	280
Orchard	20
Rangely	70
Tow Creek	140
Price	550
Total Colorado	3,790
NEW MEXICO	
Cooper	4,910
Eaves	900
Eunice	25,290
Hardy	2,780
Hobbs	13,410
Jal	1,010
Langlie	4,860
Lynch	570
Lynn	890
Mattix	3,410
Monument	26,000
North Lynch	40
Penrose	5,620
Rhoades	150
Skelly	1,970
South Eunice	3,200
Vacuum	5,500
Empire State	60
Artesia-Maljamar	6,500
Getty	300
Hogback	200
Rattlesnake	570
Table Mesa	80
Total New Mexico	108,220
Total Rocky Mountain region	186,000

Market Record of Active Oil Stocks

Compiled by Carl H. Pforzheimer & Co., 25 Broad Street, New York City, Member New York Stock Exchange and New York Curb Exchange

New York Stock Exchange

1938 High	1938 Low	Week ending Nov. 19 High	Week ending Nov. 19 Low	Week ending Nov. 19 Close	Stocks—	Total shares outstanding	Par value	Latest dividend	Payable or last paid	Com. sh. earn. 1937	Com. sh. earn. 1936	Dividends paid in 1937	1937 High	1937 Low	1936 High	1936 Low
78	55	73½	71	72	Amerada Corp.	788,675	N.P.	50cQ	10-31-38	$3.04	$2.52	$.200	114⅞	51½	125½	75
27⅝	17¾	23⅞	22⅝	22⅝	Atlantic Refining	2,663,999	$25	25cQ	12-15-38	3.51	2.59	1.00	37	18	35⅛	26⅝
23¾	12⅛	22	19½	20	Barber Asphalt Co.	390,223	$10	75c	12-16-37	1.91	1.14	1.00	43⅜	10⅛	38½	21
21⅜	10½	19	17¼	17⅜	Barnsdall Oil Co.	2,250,344	$5	25cQ	11-1-38	0.85	1.01	1.00	35¼	10	28¾	14⅛
10¾	7	9⅛	8¾	8⅞	Consolidated Oil Corp.	13,915,167	N.P.	20cQ	11-15-38	1.48	1.18	.90	17⅞	7	17¼	11½
35¾	21¼	30⅝	29⅜	29½	Continental Oil of Delaware	4,682,583	$5	25cQ	12-20-38	2.98	2.05	1.50	49	24	44⅞	28⅛
9¾	5	8⅝	7½	7½	Houston Oil (new)	1,098,618	$25	...	10-17-30	0.94	—0.03	....	17⅝	4¾	13⅞	6⅝
22⅝	12¼	17	15½	15½	Mid-Continent Petroleum	1,857,912	$10	35c	12-1-38	2.86	2.57	1.50	35⅝	14	30⅞	17¼
17¾	10⅝	14¾	14	14	Mission Corporation	1,382,945	$10	$1	6-29-38	1.31	0.48	1.25	34	15	29⅞	16⅝
23	12½	20½	18	18	National Supply	1,155,170	$10	$2 pf.‡	12-22-37	4.90	2.02	(‡)	41⅝	17⅝	75½	19⅝
14⅞	8⅞	10⅝	9¾	9⅞	Ohio Oil Co.	6,563,377	N.P.	50c	12-15-37	1.30	0.70	1.00	22⅞	8	18	12⅛
15⅞	10¼	13	11⅝	11⅝	Pacific Western Oil	1,000,000	N.P.	75c	12-15-37	1.39	1.58	.75	29¾	11¾	23½	11⅜
9¼	6½	7½	7¼	7¼	Pan American Pet. & Trans.	4,702,945	$5	$1*	12-21-37	1.18	0.52	1.00	17⅛	7	20⅝	12¼
44⅜	27¼	41¾	39½	40	Phillips Petroleum	4,449,052	N.P.	50cQ	12-1-38	5.42	4.02	2.75	64	30⅛	52⅝	33⅛
25⅜	15	22	21	21	Plymouth Oil Co.	1,029,800	$5	35cQ	9-30-38	2.85	1.65	1.65	29⅞	13	27¾	11⅞
13½	8¼	11½	10⅛	10⅛	Pure Oil Co.	3,285,120	N.P.	25c	12-1-37	2.15	1.63	.25	24⅝	8¾	27⅞	16
8⅞	5	8	7⅜	7½	Richfield Oil Corp.	3,896,638	N.P.	25c	12-24-37	0.35	....	.25	6½	4⅛	..	
27½	15½	22⅝	21¼	21½	Seaboard Oil of Delaware	1,244,383	N.P.	25cQ	9-15-38	1.97	2.00	1.00	54⅛	16	44	30⅛
18⅜	10	15⅝	14¼	14½	Shell Union Oil	13,070,625	N.P.	35c	7-15-38	1.44	1.57	1.00	34¾	14⅞	28¼	14⅝
34¾	18½	30	26½	27	Skelly Oil	1,003,949	$15	50c	12-15-38	6.07	4.42	1.50	60⅝	26½	47⅝	19½
16⅜	10¾	14	12⅞	13	Socony-Vacuum	31,151,071	$15	25c	9-15-38	1.82	1.38	.80	23¼	13	17½	12½
34⅞	25⅛	30	27⅞	28	Standard Oil of California	13,014,754	N.P.	35cQ†	12-15-38	3.17	1.79	2.00	50	27⅛	47⅝	35
35½	24¾	29	27½	27¾	Standard Oil (Indiana)	15,267,030	$25	25cQ	12-15-38	3.66	3.09	2.30	50	26½	48⅛	32¾
50⅛	32½	50⅛	50	50	Standard Oil of Kansas	112,837	$10	$5	12-20-37	6.93	1.91	5.00	43	30⅝	31	25
58⅜	39¾	54	52⅛	52½	Standard Oil of New Jersey	26,224,767	$25	50c§	12-15-38	5.64	3.73	2.50	76	42	70⅜	51⅛
59	45	57	54½	57	Sun Oil	2,316,484	N.P.	25cQ	12-15-38	3.86	3.25	$1 & 8% stk.	77½	44½	91	70
4¼	1¾	3⅝	3¼	3⅜	Superior Oil Corp.	1,388,079	$1	...	.....	0.32	0.14	....	7¾	1½	6¾	3
49⅜	32⅝	45½	43⅜	43⅞	Texas Corp.	10,875,006	$25	50cQ	10-1-38	5.02	4.10	2.25	65⅛	34¾	55¼	28⅜
5¾	2⅝	5¾	4¾	4¾	Texas Gulf Producing Co.	888,138	N.P.	15c	12-15-38	0.68	0.93	.10	9⅝	2	8⅞	4⅝
12½	7	10⅛	9¾	9¾	Texas Pacific Coal & Oil	888,237	$10	10c	12-1-38	1.11	0.72	.40	16⅝	5⅜	15¼	7½
15⅜	10⅛	13⅜	12⅞	12⅞	Tide Water Associated	6,369,175	$10	25cQ	12-1-38	2.08	1.03	1.20	21⅝	13⅛	21⅜	14⅝
22½	17⅛	19¾	19	19	Union Oil of California	4,666,270	$25	30cQ	11-10-38	2.58	1.40	1.40	28¼	17½	28½	20⅝
23½	20	23	22¼	22¼	Union Tank Car Co.	1,200,000	N.P.	30cQ	12-1-38	1.70	1.76	1.60	31½	22	31⅝	22⅝
3½	1⅝	2⅜	2½	2⅜	Wilcox Oil & Gas	506,522	$5		5-10-28	0.24	—0.06		6¼	1⅜	5¼	2⅜

*Payable in 3½ per cent notes. †Includes extras. ‡One-tenth share $2 preferred stock. §Also 1½ per cent stock dividend.

New York Curb Exchange

1938 High	1938 Low	Week ending Nov. 19 High	Week ending Nov. 19 Low	Week ending Nov. 19 Close	Stocks—	Total shares outstanding	Par value	Latest dividend	Payable or last paid	Com. sh. earn. 1937	Com. sh. earn. 1936	Dividends paid in 1937	1937 High	1937 Low	1936 High	1936 Low
11¾	5	10½	9⅜	9⅜	American Republic Corp.	1,308,049	$10	10c	7-11-38	$0.27	$0.28	$0.40	10	6⅝	..	..
10¼	4⅞	8¼	7¼	7⅝	Bridgeport Machine Co.	260,000	N.P.	$1.25	12-30-37	1.90	1.26	2.00§	21⅜	7	21	13¼
39	24¼	27⅜	27⅜	27⅜	Buckeye Pipe Line Co.	200,000	$50	50c	12-15-38	4.02	4.40	3.75	51½	36	50	39⅜
117	97	117	115½	116½	Chesebrough Mfg. Co.	120,000	$25	$1.50Q†	9-27-38	6.73	7.46	7.00	12	95½	124¾	105
11	5⅛	8¾	7¼	7¾	Cities Service (new)	3,714,317	$10	....	6-1-32	1.02	0.13	....	5⅜	1½	7⅜	3
2⅜	⅞	1	⅞	1	Cosden Petroleum	462,551	$1	....	....	0.19	...	....	5½	1½	4½	1⅜
27½	17½	23⅞	22¼	22¼	Creole Petroleum	6,975,383	$5	50cSA†	12-15-38	1.61	1.23	1.00	38¾	20¼	39	19⅜
10¼	5½	8⅛	8	8⅛	Darby Petroleum	351,390	$5	25cSA	1-15-39	1.36	1.26	.50	18⅝	6½	18⅛	9
3½	1¾	2	1⅞	2	Derby Oil & Refining	263,162	N.P.	....	.....	1.34	0.66	....	8⅜	2¼	6⅝	1⅞
31	19	..	..	..	Eureka Pipe Line	50,000	$50	50c	8-1-38	—0.12	—0.62	4.00	47½	24½	47½	38½
46⅞	33	40¼	39⅛	39½	Gulf Oil Corp.	9,076,202	$25	25cQ	10-1-38	3.51	2.90	1.00	63½	33	59	36
72⅝	56	66⅛	65¼	65⅜	Humble Oil & Refining	8,987,840	N.P.	62½c	10-1-38	5.22	3.80	2.00	87	54⅞	80	57
19½	14⅛	18	17½	17½	Imperial Oil of Canada	26,965,078	N.P.	62½cSA†‡	6-1-38	0.98	0.95	1.25	24¼	14½	24½	19¾
9⅜	6⅝	7	6⅝	6⅞	Indiana Pipe Line	300,000	$10	20c	11-15-38	1.03	1.00	.80	15	5⅞	9⅜	5½
31¼	21	28⅜	27¼	28⅛	International Petroleum	14,324,088	N.P.	$1.25†‡	6-1-38	....	1.81	2.50	39½	23½	39⅝	32⅝
5	2¾	3¼	3¼	3¼	Kirby Petroleum Co.	500,000	$1	10c	4-15-38	0.17	0.20	....	8⅜	2⅜	5⅜	2⅝
25⅛	15⅝	21⅜	19⅝	19⅝	Lion Oil Refining	434,820	N.P.	25cQ	10-10-38	2.17	1.43	1.50	34	12½	17⅝	7⅜
10⅜	6⅝	10⅛	9¾	9¾	Lone Star Gas	5,553,747	N.P.	20c	8-20-38	1.14	1.02	.60	14¼	5¼	14¼	9⅞
9⅜	6½	7½	7	7⅜	Louisiana Land & Exp.	2,977,449	N.P.	10cQ	9-15-38	0.58	0.64	.50	15¼	6⅜	15⅝	9⅞
9¾	6⅜	9¼	8½	8½	Midwest Oil Co.	998,444	$10	50c	12-15-38	1.14	0.95	1.00	14⅝	6¼	..	..
5⅜	4½	5⅜	5	5	Mountain Producers	1,593,584	$10	30cSA	12-15-38	0.76	0.62	.60	7⅞	4⅛	8⅜	5
14⅝	11½	14⅜	14	14	National Fuel Gas	3,810,183	N.P.	25cQ	10-15-38	0.96	1.19	1.00	19½	12	23	17⅝
9¼	6⅝	8	7½	8	National Transit	509,000	$12.50	40c	12-15-38	1.19	0.79	1.00	12½	7¼	15⅜	9¼
2⅝	1½	..	..	..	New Mexico and Arizona	1,000,000	$1	1c	12-1-38	0.02	0.02	....	5	1⅛	6⅝	1⅝
4½	4	..	..	..	New York Transit	100,000	$5	15c	10-15-38	0.49	0.34	1.00	5⅜	3⅞	6¼	4¼
6	4	5¼	5¼	5¼	Northern Pipe Line	120,000	$10	15c	12-1-38	0.78	0.66	1.00	12¾	5¾	9¾	4⅞
7⅜	3½	6⅛	5⅝	6	Pantepec Oil	2,441,142	$1	....	.....	....	0.05	....	9⅝	2⅜	10⅛	3¾
3½	1⅝	2⅛	2	2	Root Petroleum Co.	336,045	$1	25c	2-1-37	—0.17	0.45	.25	12⅝	2	19¼	4½
4	2½	3	2¾	3	Ryan Consolidated	296,931	N.P.	....	.....	0.46	....	....	6½	2¼	4⅜	1⅞
5⅜	3¼	4¼	4¼	4¼	Southern Pipe Line	100,000	$10	15cSA	9-1-38	0.85	0.41	.45	7¼	3⅞	7⅞	3¼
39	28¾	31	29½	30	South Penn Oil	1,000,000	$25	37½cQ	9-30-38	4.64	3.59	3.65	56	35	44	32½
22¼	19	20¾	20¾	20¾	Southwest Penna. Pipe Lines	35,000	$50	50cQ	10-1-38	0.95	0.97	2.00	42	20	60	44
18¾	15	18⅛	17½	18⅛	Standard Oil of Kentucky	2,604,790	$10	25c	9-13-38	1.60	1.46	1.50	21⅛	14¾	23⅜	17⅛
8¾	6⅛	6⅛	6⅛	6⅛	Standard Oil of Nebraska	166,403	$25	25c	3-29-37	—0.58	0.42	.25	13¾	8	14⅝	11
22¾	16¼	21	20⅛	20¾	Standard Oil of Ohio	753,740	$25	25c	12-15-38	3.67	4.77	1.50	45	16	40	21¾
3¼	2⅛	2½	2⅛	2⅛	Sunray Oil	2,006,176	$1	10c	12-24-37	0.42	0.26	.25	4⅞	2	5	2⅝
5¼	3½	4⅝	4½	4⅝	Texon Oil & Land	936,024	$2	15cQ	9-30-38	0.51	0.36	.45	7⅝	2	9⅜	5⅜
7⅝	4¼	5⅜	5¼	5⅜	Transwestern Oil Co.	750,000	$10	....	.....	0.48	0.06	....	13⅞	4⅝	..	..
5¼	2⅜	3⅜	3½	3½	United Gas Corp.	7,818,959	$1	...	.....	0.25	0.20	....	13⅞	3	10⅜	4

†Includes extras. ‡Payable in Canadian funds. §Of which $1 was in preferred stock.

PERSONAL

BARTON A. MYERS, superintendent of drilling and production in Colombia, Peru, Ecuador, Venezuela and Canada for the International Petroleum Company, Toronto, recently returned to this country after a swing through South America.

JUDGE THOMAS D. LYONS, Tulsa, has returned from South Bend, Ind., where he delivered a series of lectures on oil and gas law before the law department of Notre Dame University, his alma mater. The lectures covered the nature of property in oil and gas in the earth, chattel real, incorporeal hereditament, base or qualified fee, oil and gas mining lease, effect of ownership theory on federal taxation, conservation and depletion. Judge Lyons served on the Supreme Court Commission of Oklahoma 1923-27 and on the district bench of Tulsa County 1933-35.

J. S. MEANS, Means & McGee, independent operators, Houston, Tex., has returned from Wyoming, where he spent several weeks hunting.

H. A. HASSAN, formerly president of the Sinclair Oil Company of Cuba, has been transferred to New York after spending 16 years in Paris, France.

H. R. CULLEN, president of the Quintana Petroleum Company, Houston, Tex., and Mrs. Cullen are spending several weeks in California visiting relatives.

D. B. COLLINS, manager of the production department of the Shell Petroleum Corporation, Houston, Tex., has returned from a vacation trip, the last two weeks of which were spent in West Texas.

BERNERD A. RAY, formerly assistant to DON WISE, district geologist in Kansas for the Tide Water Associated Oil Company, has been transferred from Wichita, Kans., to Owensboro, Ky.

RICHARD D. McGUIRE, of the Southern California Gas Company, formerly assistant to the secretary of the Los Angeles Gas & Electric Company, has been appointed assistant secretary of the former company.

C. M. (DAD) JOINER, who opened the East Texas field, greatest of all time, is to drill a wildcat in the middle Rio Grande Valley, on the San Clemente grant, one of the old Spanish grant properties in Valencia County, New Mexico. Operations are to start by December 15, according to announcement. Mr. Joiner's decision is said to have followed a favorable report on the area by DR. A. D. LLOYD, who mapped and located the East Texas field.

CHARLES E. KNOX, owner of the Knox Refining Company, Enid, Okla., who ran CONGRESSMAN PHIL FERGUSON a close race in the eighth district, wired congratulations to his Democratic opponent a few days ago, announcing he had abandoned the idea of a recount. "Congratulations, Phil," said the message. "It seems your nose was longer. So long. See you in 1940." Mr. Ferguson defeated the Enid oil man by about 600 votes.

W. G. SKELLY, president of the Skelly Oil Company, has been named chairman of a subcommittee under the special committee of 36 sponsored by the Independent Petroleum Association of America. This subcommittee will study the proposal to place refinery regulations under the Interstate Oil Compact and cooperate with a similar committee of the Western Petroleum Refiners Association, and report to the committee as a whole on December 14, in Fort Worth, Tex. The other members of the subcommittee are: AL BUCHANAN, San Antonio, Tex.; CAPT. B. A. HARDEY, Shreveport, La.; L. H. PRICHARD, Oklahoma City, Okla.; JOE K. MAHONEY, El Dorado, Ark.; E. B. SHAWVER, Wichita, Kans.; G. A. SMITH, JR., Saginaw, Mich. FRANK BUTTRAM, president of the Buttram Petroleum Corporation, Oklahoma City, has been appointed chairman of a subcommittee of 11 to study the problems of pipe-line divorcement and separation of integrated companies and report to the committee at the Fort Worth meeting. The other members of the subcommittee are E. B. REESER, head of the Barnsdall Oil Company, Tulsa; J. S. BRIDWELL, Wichita Falls, Tex.; J. E. FARRELL, Fort Worth;; S. A. GUIBERSON, JR., Dallas; WINSTON P. HENRY, Houston; GEORGE A. HLL, JR., Houston; ALF M. LANDON, Topeka, Kans.; C. A. LESTER, Dallas; E. C. MORIARTY, Wichita; VAN S. WELCH, Artesia, N. M.

Do You Remember?

From The Oil and Gas Journal Files

25 YEARS AGO

Texas' Blue Sky law went into effect November 19. It is intended to protect innocent investors, known to unscrupulous promoters of oil and mining companies as "suckers," from the wiles of grafting stock peddlers.

The value of the petroleum and natural gas produced in the United States in 1912 was $248,366,291, of which crude oil represents $163,802,334 and natural gas $84,563,957, according to the Bureau of Mines annual report just published.

A new pool is opened at Moran, Tex., by the Texas Co.

20 YEARS AGO

The Prairie Oil & Gas Company is building 48 big steel storage tanks in the Ranger, Texas, field. The company looks for great expansion in the Central Texas area.

At a banquet in London, Lord Curzon, in toasting the American delegates, declared that the cause of the Allies had been "floated to victory on a sea of oil."

10 YEARS AGO

George H. Jones, 56, chairman of the board of Standard Oil Company of New Jersey, dies in New York after a long illness. He started work when a small boy, earning 35 cents a day for 12 hours' toil. His first work with the Standard Oil Company was as clerk and stenographer for W. W. Splane in the National Transit Company headquarters in Oil City, Pa. His rise was rapid after 1911.

A new pool in St. Clair County, Illinois, is attracting attention. It is in Section 28, Sugar Loaf Township.

California has produced to date 2,955,417,843 barrels from 124,075 acres, a recovery of 23,819 barrels per acre.

A. V. Bourque resigns as secretary and treasurer of the Natural Gasoline Association of America to join the Western Petroleum Refiners Association as assistant to the executive manager.

Twenty representative oil stocks on the New York Stock Exchange averaged $82.56 per share on November 26.

DON DAWSON, of the General Petroleum Corporation, has been appointed general sales manager, succeeding MARC D. LEH, who recently resigned.

H. SMITH CLARK, chief geologist for Sinclair Prairie Oil Company in Fort Worth, Tex., is spending part of his vacation deer and turkey hunting in Kerr County, that state.

I. FRANK BROWN, foreign sales representative, New York, is visiting oil fields of Venezuela with stops at Caracas, Maracaibo and other points. He is accompanied by Mrs. Brown.

D. VAN NYMEGEN SCHOEGEVEL, manager at Curacao, N.W.I., for the N.V. Curacaosche Petroleum Industrie Maatschappij, which operates one of the world's largest refineries at that point, is on leave in the United States.

GOV. E. W. MARLAND, Oklahoma, who had planned to leave for Washington, D. C., last Friday to discuss suggestions for modified federal regulation of the oil industry with the president, had to postpone the trip because of matters demanding his attention at Ponca City, Okla. It was said he might leave for Washington late this week.

ALF M. LANDON, Topeka, Kans., appointed by the president one of the 12 delegates to the conference of American republics to be held in Lima, Peru, next month, says the problems must be discussed in a "good old-fashioned neighborly way" if enduring benefits are to be achieved. "This conference should be more than a grab-bag session for trade. New ideas of government are abroad in the world today and temperaments of people must be taken into consideration as well as armaments."

PARAGRAPHS

R. B. McFARLAND, assistant manager of the Quincy, Ill., sales division of the Standard Oil Company of Indiana, will be transferred to the same position in Joliet, Ill., December 1 to succeed W. B. LALLEY, who is on leave of absence because of illness. Mr. McFarland's successor is to be announced later.

DONALD B. GILLIES, vice president of the Republic Steel Corporation, was chosen president of the American Institute of Mining and Metallurgical Engineers in the mail ballot recently conducted. Four new directors for 1939 are: FRANCIS A. THOMSON, president of the Montana School of Mines and chairman of the mineral industry education division of the institute; CHARLES CAMSELL, deputy minister of the department of mines and resources, Ottawa, Canada; JAMES T. MacKENZIE, chief chemist of the American Cast Iron Pipe Company, Birmingham, Ala., and chairman of the iron and steel division of the institute; CHESTER A. FULTON, president of the southern Phosphate Corporation, Baltimore, Md.

W. L. BURNS, production superintendent, and H. L. J. HUNTER, drilling superintendent of the Anglo-Iranian Oil Company, Ltd., are spending several weeks in Houston, Tex., visiting Gulf Coast oil fields and studying coastal production and drilling methods.

D. W. HARRIS, vice president and general manager of the Arkansas Fuel Oil Company, Shreveport, La., was honored recently with his two brothers, by the Georgia School of Technology, which was founded 50 years ago by their father, the late Governor Nat E. Harris, of Georgia.

DR. E. E. ROSAIRE, Houston, Tex., described the method of oil exploration by soil analysis before the South Texas Geological Society, San Antonio, last Friday evening. Doctor Rosaire was entertained at dinner before the meeting by W. W. KEATING, vice president of the society.

LLOYD S. SMITH, resident manager of the refinery of the Lago Oil & Transport Co., Ltd., located on Aruba Island of the N.W.I., has received a medal of the Order of Orange Nassau. This honor was conferred on him by Queen Wilhelmina of the Netherlands, in connection with the jubilee celebration of her fortieth year on the throne.

MARY ELIZABETH DAVIS, 13, Big Spring, Tex., has received three national life-saving awards, a wristwatch, and a commendatory resolution from the board of directors of the Continental Oil Company, by which her father is employed. Study of her father's company textbook on safety enabled her to save the life of her 11-year-old brother, who had been overcome by gas which collected in a ravine. The girl applied artificial respiration for 35 minutes.

HENRY CARTER REA, district geologist of the Shell Petroleum Corporation, in Kentucky, sailed from New York, November 16, aboard the S.S. Bremen for a business trip to Europe.

D. W. ELLIOTT, independent oil producer, was chosen chairman of the Los Angeles Basin Chapter of the American Petroleum Institute, Division of Production, at its recent annual election. FRED MILLER, Continental Oil Company, Seal Beach, was chosen vice chairman, and C. R. MALONE, Oil Well Supply Company, secretary-treasurer. The advisory committee elected to serve until December 31, 1939, consists of R. L. KEYES, Texas Company; CHESTER FEAR, St. Louis Oil Company; E. M. REES, Fluid Packed Pump Company; V. H. WILHELM, Texas Company; WILBUR HARRISON, Apex Oil Company; A. LOCKHART, Envoy Petroleum Company; F. A. GRASER, consulting engineer at Long Beach; F. R. SCHMIEDER, Shell Oil Company; C. J. DEAN, General Petroleum Corporation; J. GILSTRAP, California Production Company; E. BARTOSH, Barnsdine Oil Company, and D. M. BERNT, Pacific Western Oil Company. The advisory committee to serve until December 31, 1940, consists of F. J. TAVES, Schlumberger Oil Well Survey Company; E. L. DAVIS, Texas Company; W. C. KINDER, Republic Supply Company; E. K. PARKS, Standard Oil Company of California; G. G. PEIRCE, State Division of Oil and Gas; R. E. SADLER, D. D. Dunlap Oil Company; H. A. BRETT, Union Oil Company; S. S. SWEENEY, Richfield Oil Corporation; D. K. WEAVER, Wilshire Oil Company; CLARK SHAW, city of Long Beach; A. WILSON, Standard Oil Company, and B. S. CLEARWATER.

Didn't Rush Into Oil

J. E. Moorhead, executive secretary of the Pennsylvania Grade Crude Oil Association, didn't rush into oil. Although he grew up in states now famed as producers of petroleum, it was only 10 years ago that he got into the business himself. But he was accumulating a lot of experience. Mr. Moorhead, who has been at the head of the Pennsylvania group four years, was born in Howard County, Arkansas, in 1889, and he lived in that state, Texas, and Oklahoma until 1905, when he moved to Colorado. He was in newspaper work for about 10 years, starting on the Denton (Tex.) Monitor and later holding various editorial positions on newspapers in Colorado. He was executive secretary to Oliver H. Shoup during the latter's two terms as governor of Colorado. Governor Shoup was an active figure in oil. Later Mr. Moorhead became advertising manager for the Mountain States Telegraph & Telephone Company, Denver, then advertising and sales promotion manager for the Marland Refining Company and later the Continental Oil Company, in Ponca City, Okla. He entered the service of the Pennsylvania Grade Crude Oil Association in 1933, and a year later he was elected executive secretary. From 1921 to 1928 he was an officer in the Colorado National Guard, most of the time on the staff of Major General B. H. Markham, now director of the American Petroleum Industries Committee in New York. Mr. Moorhead resides in Oil City, Pa.

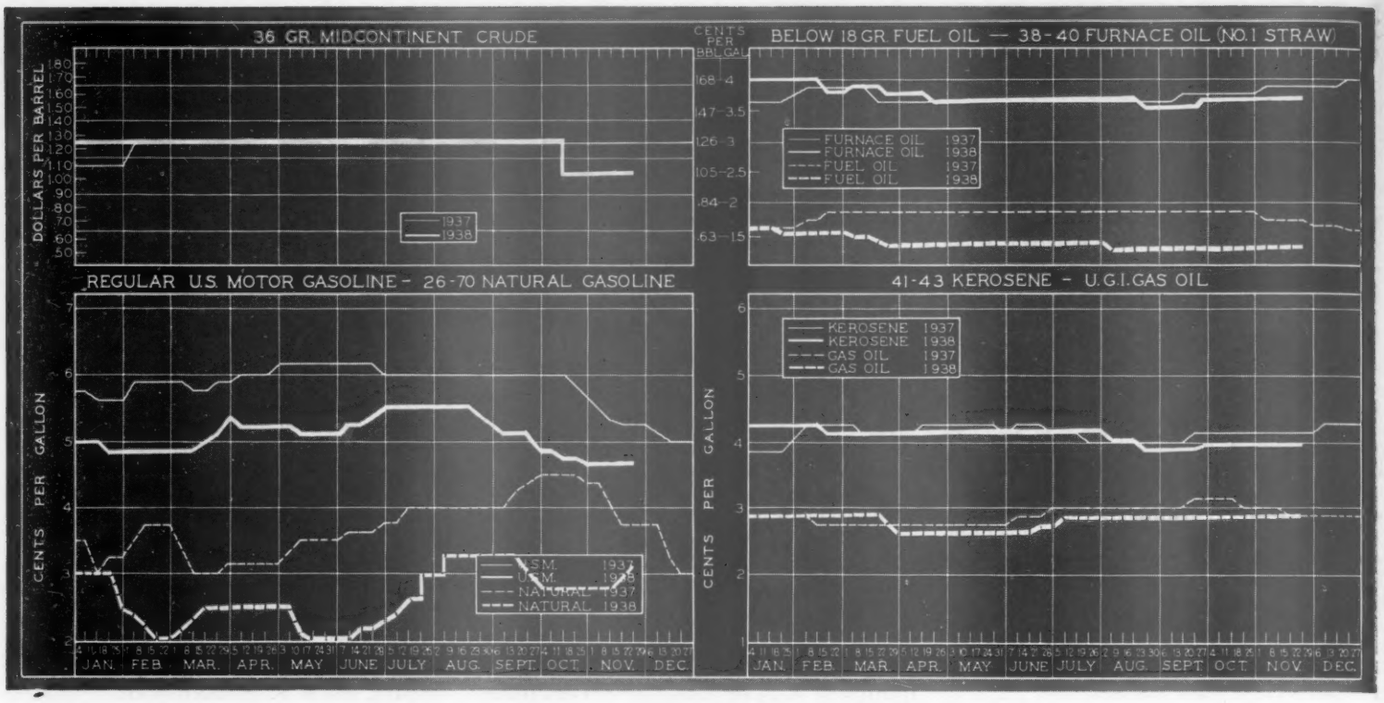
J. E. MOORHEAD

GLENN HARDEN, geologist, formerly on the staff of the Ramsey Petroleum Corporation, Oklahoma City, Okla., has joined the U. S. Geological Survey and is stationed at Geary, Okla.

J. R. TOWNSEND, materials standards engineer for the Bell Telephone Laboratories, Inc., New York, has been elected a member of the executive committee of the American Society for Testing Materials. He takes the place of ALLEN ROGERS, who resigned because of ill health.

J. P. CONNELL, general manager of the Consolidated Oil Company, Houston, Tex., has moved to Shreveport, La., where he has been made manager of the lubricating sales department of the Arkansas Fuel Oil Company. BYRON RUSSELL, former district salesman for the latter company in Shreveport, succeeds Mr. Connell as general manager of the Houston company, distributor of Cities Service products.

P. H. JONES, of the Union Oil Company of California, Wilmington, Calif., has been appointed chairman of the American Petroleum Institute's standing subcommittee to study drilling fluids. C. W. FROOME, also of Union, Santa Fe Springs, Calif., has been appointed chairman of the Institute's California district subcommittee on oil-country tubular goods to succeed C. C. SCHARPENBERG, resigned. C. A. DUNLOP, Humble Oil & Refining Company, Houston, Tex., has been appointed chairman of the committee on standardization of standard rigs and derricks. He takes the place of WALTER H. MEIER, who resigned after serving as chairman for five years. Mr. Meier will continue as a member of the committee. F. H. SCHNOOR, Standard Oil Company of California, Taft, has been appointed secretary of the committee.



Representative Mid-Continent Quotations on Crude Oil and Refined Products, Basis Oklahoma (Group 3)

Natural Gasoline Tighter in Group 3 Area and Motor Fuel Holding Well

By T. F. SMILEY

Natural gasoline was tight in the Group 3 market this week. Everybody who tried to buy any discovered that. "If it got any tighter it would crack," was a comment. The light fuels were getting a lift from colder weather, and motor fuel was holding up well.

The fall demand for naturals was late in arriving, but when it did come it came with a bang. In late September the market for this product presented a dispiriting scene. This week it was full of cheer. Field stocks were less than half as large as they had been eight weeks earlier. So thoroughly sold up were manufacturers in both Oklahoma and Texas that buyers declared only scattered cars were obtainable at current prices.

Scarcity Develops Suddenly

The naturals have been showing improvement for weeks, but the actual scarcity of material came with a suddenness that took even the large manufacturers by surprise. Several developments have contributed to the buoyant market. One was the vigorous demand from the Gulf Coast and the North. Another was brisk export and coastwise business. Still another was the recent advance in Oklahoma prices, which promptly started movement to interior refiners and blenders of such overheavy inventories as there chanced to be in Texas.

A large number of natural gasoline manufacturers produce only three to eight cars daily; but because they have storage facilities for working stocks only they are obliged to move their output as fast as it is produced. A lull in buying results in the product from these plants being pressed into an inhospitable market for whatever it will bring. That was the condition that existed last spring. Foresighted refiners, and the large gasoline manufacturers too, bought up great quantities of 26-70, which they stabilized to 18 pounds or lower and stored. It was this stored material, along with the exceptional prolongation of summery weather, that kept the fall demand for natural from developing as early as usual.

Observers point out that Texas demand for natural may rise sufficiently to absorb all the material produced in that state, in which case the present differential between Oklahoma and Texas prices will be wiped out. Such a thing happened last year. In fact, for a time Texas prices were higher than those in Oklahoma.

Movement of motor fuel continued at a high level. Demand eased off slightly last week, as cold or rainy weather discouraged use of the family car; but a pickup in both spot and contract shipments developed as buyers prepared for the heavy requirements that customarily attend the Thanksgiving holiday. Prices were firm, and concessions were increasingly difficult to find. Many refiners say their November business thus far exceeds that of the comparable period in October. The explanation offered is that jobbers early in October were looking for unfavorable motoring conditions to appear soon and so they cut down on their purchases. But the weather man fooled them, with the result that this month they have found themselves under the necessity of replenishing their stocks.

Taking Hopeful View

Refiners generally were disposed to take a hopeful view of the outlook, notwithstanding a dismally low level of prices that rob operation of profits. The Okmulgee plant of the Cities Service Oil Co. has been added to the list of inactive refineries.

The decline in the nation's stocks of gasoline, which has brought them below the line recorded in November, 1937, encourages a widening belief that even though sorely needed market corrections are slow in appearing, the refining industry will enter the next heavy consuming season without the burden of huge excessive inventories.

Cooler weather was swelling the shipments of furnace oils, the whole range of which was showing increased firmness. Wax was strong.

Refined Oil Market Barometer

Thanksgiving Day requirements help gasoline, but demand likely to slacken after this week, especially if colder weather sets in. Natural gasoline strong, with increased vigor in prospect. Heavy fuels firmer, with offerings at concessions. Light fuels spotty, in most areas laggard owing to mild weather. Wax well sold up in Mid-Continent and steady in East.

MID-CONTINENT. Natural gasoline up. Motor fuel firm. Heavy fuels gaining. Wax strong.

EAST COAST. Residual fuel oil strong. Gasoline holding. Light fuels lifeless.

GULF COAST. Gasoline weak. Kerosene steady. Fuel oils tight.

CALIFORNIA. Fuel oil and Diesel down fractionally. Market quiet.

PENNSYLVANIA. Gasoline fairly steady. Kerosene easy. Wax well sold up.

CHICAGO. Low-octane gasoline stronger than other grades. Heavy fuels improving.

Rise in Fuel Oil Consumption Is Feature of Eastern Markets

By H. STANLEY NORMAN

NEW YORK, Nov. 22.—The increase in residual fuel oil consumption, with eastern coast prices responding in keeping with volume of shipments, was last week's outstanding feature in the refined market. The top price in the New York harbor district of 95 cents per barrel was unchanged, but there is little, if any, material available at the previous low of 65 cents per barrel.

Gasoline consumption on the eastern coast continues to exceed normal expectations. Wholesale prices at terminals, such as New York, Boston, Philadelphia, and Baltimore are unchanged from the preceding week. Regular gasoline meeting specifications of 65-octane is selling at eastern terminals at prices ranging from 5¾ to 6 cents per gallon in tankcars. Deliveries by barge can be obtained at prices one-eighth cent below the above quotations.

Shipping instructions against contracts in this area are much higher than obtained a year ago and continue to run counter-current to the calendar season. Weather conditions are conducive to motor car operations. Introduction of 1939 car models and the acceptance with which they have been met by the public has been an important contribution to gasoline consumption during the past three weeks.

Demand for light fuel oil remains considerably below expectations for this season of the year. Price concessions on the part of retail tank-wagon distributors are frequently reported. Tankcar prices for No. 2 fuel oil are unchanged at 3¾ to 4 cents per gallon. The time at which temperature conditions will improve demand for light fuel oils is unpredictable. The major companies are supplying their tank-wagon customers of light fuel oil at 5⅝ to 6½ cents per gallon. Primary markets on the Gulf Coast are showing little, if any, change. Export sale of 25,000 bbls. of 61-63, 390 endpoint gasoline, 60 octane at 4⅜ cents per gallon was reported last week. A similar quantity of 65-octane gasoline was sold at 4.7 cents per gallon, f.o.b. Gulf Coast for December and January loading.

The market for gas oil continues to depend largely upon the Diesel index of the material involved. An order for 15,000 bbls. of 53 Diesel index gas oil was covered on the Gulf Coast at a price of 3⅜ cents per gallon. Bunker C fuel oil rules unchanged in New York and other eastern sea coast terminals at 95 cents per barrel. The Gulf Coast minimum terminal price of 60 cents per barrel has been increased for the past three weeks to a range of 62 to 65 cents.

Demand for industrial grades of heavy fuel oil continues to exceed that of the past four months by a substantial margin. This improvement is due not only to greater demand from industrial consumers, but also to requirements for office buildings, church and school heating.

Demand for both light and heavy fuel oils is due for much greater expansion during the next two or three weeks. Existing temperatures continue to run materially below those normally expected at this season of the year. Fuel oil distributors realize it is only a matter of time until demand and prices advance to a point returning profit on this phase of petroleum marketing.

Charter rates on both clean and dirty tonnage continue to increase. Dirty boats for service between points on the Gulf Coast and north of Cape Hatteras are now firmly established at about 22 cents. Shippers report that boats are not plentiful and that higher prices in this service are likely to prevail within the next month.

Retail prices for motor fuel in the eastern territory are under severe disturbance. Northern Pennsylvania, southern and eastern New York and scattered spots in New England are the most seriously affected. Deviation from normal prices as prevailing in Boston, New York, and Philadelphia is not material but is representative of the demarcation from stable quotations in all districts. The range between normal prices and those prevailing in depressed areas does not amount to more than 1 cent per gallon in the most seriously affected areas. This, however, is sufficient to keep the retail picture somewhat unsettled and distributors concerned about the future.

The margin by which domestic demand for motor fuel exceeds that prevailing at this time last year appears to be about 5 to 10 per cent; doubtless this is indicative of an improvement in general industrial conditions and of greater acceptance of 1939 automobiles. Reports are uniform from practically all sections of the country showing sales of new cars to be at levels exceeding those established in 1937. If these trends continue it appears probable domestic demand for motor fuel during 1938 may equal or possibly exceed by a maximum of 1 to 2 per cent that registered for 1937.

Demand for white crude scale wax continues at rates established during the past three or four weeks. The price for 124-126 a.m.p. of 2.35 to 2.4 remains unchanged. There appears to be an abundant demand for this material at prices below the minimum but refiners, particularly in the western Pennsylvania area, are sold up for the next month and are reluctant to quote in advance for delivery in 1939.

Kerosene was in somewhat lighter demand at New York terminals and at primary markets on the Gulf Coast and western Pennsylvania. Quotations by refiners in western Pennsylvania were reported off an eighth of a cent from preceding levels, but those in New York were unchanged from the previous week. Stability of the New York market is a reflection of the firmness prevailing on the Gulf Coast. Kerosene there of 41-43 water white rules at 3⅞ to 4⅛ cents per gallon. In New York Harbor area, this grade of kerosene rules at 4⅞ to 5¼ cents per gallon depending upon source and medium of delivery.

New York gasoline prices to the wholesale trade range from 5⅞ to 6¼ cents per gallon for 65-octane. The low of this range applies to deliveries by barge from one or two sources and the high is representative of tank-car sales, f.o.b. at New Jersey terminals for New York delivery.

Prevalence of mild temperatures and clear weather during the past two months has been the outstanding feature of the year in domestic gasoline consumption. Mildness of the past two months has contributed much to offset July's rainy season.

Refiners have taken new hope for the winter season in view of the withdrawals of gasoline in the past two months and the exports which continue to exceed levels established during the preceding year. Further confidence for 1939 is found by producers in the fact that crude oil stocks are now less than 275,000,000 bbls., indicating that the economic low is near at hand. This being the case, refiners who have been drawing on storage during the past year will be obliged to depend upon current production to supply processing requirements.

A. P. I. Weekly Refinery Statistics

Week Ending November 19, 1938

	Capacity reporting (per cent)	Daily crude runs (bbls.)	Total gasoline stocks	Gas oil and fuel oil stocks
East Coast	100.0	506,000	17,056,000	16,736,000
Appalachian	85.9	97,000	2,775,000	769,000
Indiana, Illinois, and Kentucky	89.5	440,000	10,242,000	9,072,000
Oklahoma, Kansas, and Missouri	81.6	241,000	6,029,000	4,642,000
Inland Texas	50.3	115,000	1,728,000	1,997,000
Texas Gulf	88.9	787,000	9,164,000	14,660,000
Louisiana Gulf	97.3	135,000	2,108,000	2,663,000
North Louisiana and Arkansas	55.0	47,000	439,000	898,000
Rocky Mountains	54.2	44,000	1,085,000	798,000
California	90.0	488,000	13,318,000	98,336,000
Total reported	85.6	2,900,000	63,944,000	150,571,000
Estimated unreported	.....	330,000	3,680,000	3,400,000
*Estimated total	.....	3,230,000	67,624,000	153,971,000
*Estimated total previous week	.....	3,180,000	67,551,000	154,666,000
*November 20, 1937	.....	3,365,000	69,678,000	120,153,000

*Bureau of Mines, currently estimated.

Stocks of Crude Oil in the United States

(BUREAU OF MINES ESTIMATES)

Week ending November 12, 1938	273,394,000 barrels
Week ending November 5, 1938	275,217,000 barrels
Week ending November 13, 1937	305,608,000 barrels

Figures do not include stocks of heavy, unrefinable California crude.

Retail Oil Markets

Tank-wagon and filling station prices on gasoline and kerosene furnished by the larger marketing firms

Prices as of November 22, 1938

Taxes

The gasoline quotations given in the following tables include the 1-cent federal tax, as well as state, county and city taxes. The gasoline is the regular or standard grade. In most areas lower grades and a premium grade also are available.

Standard Oil Co. (Indiana)

	Gasoline Tank wag.	Gasoline Dir.	Gasoline Inc. tax	Kero. tank wag.
Chicago, Ill.	15.1	12.6	4.0	10.0
Decatur	15.1	12.6	4.0	10.0
Joliet	15.1	13.6	4.0	10.0
Peoria	15.1	13.1	4.0	10.0
Quincy	14.9	12.9	4.0	9.8
Davenport, Ia.	15.1	13.6	4.0	†10.0
Des Moines	14.9	13.4	4.0	‡9.8
Mason City	15.3	13.8	4.0	‡10.2
Duluth, Minn.	16.9	15.4	5.0	10.8
Mankato	16.5	15.0	5.0	10.4
Minneapolis	16.5	14.5	5.0	10.4
LaCrosse, Wis.	16.5	15.0	5.0	10.4
Green Bay	16.9	15.4	5.0	10.3
Milwaukee	16.3	14.8	5.0	10.2
Detroit, Mich.	14.3	12.8	4.0	9.0
Grand Rapids	14.8	13.05	4.0	9.7
Saginaw	15.8	14.3	4.0	9.3
Evansville, Ind.	16.6	15.1	5.0	†10.5
Indianapolis	16.8	15.3	5.0	†9.5
South Bend	17.1	15.6	5.0	†9.0
Fargo, N. Dak.	16.7	15.2	4.0	11.6
Minot	18.0	16.5	4.0	12.9
Huron, S. Dak.	17.0	15.5	5.0	10.9
Kans. City, Mo.*	14.4	12.9	4.0	7.5
St. Louis*	14.7	13.2	4.0	9.6
St. Joseph	14.4	12.9	4.0	9.3
Wichita, Kans.	13.9	10.6	4.0	7.8

*State tax 2 cents, 1-cent city tax and 1-cent federal tax. †Does not include 4-cent state tax. ‡Does not include 3-cent state tax.

Exclusive of state general sales taxes.

Discounts to commercial consumers: On purchases per month off tank-wagon prices: 1,000 gallons or more, 1.5 cents off; minimum delivery 25 gallons.

Stanolex Fuel Oil in Chicago

Effective November 1, 1938, f.o.b. Chicago tank-wagon prices: Standard range oil, 1-99 gallons, 9 cents; 100-149 gallons, 8 cents; 150 gallons and over, 7.5 cents. Stanolex fuel oil No. 1, 1-149 gallons, 8 cents; 150-399 gallons, 7 cents; 400 gallons and over, 6.5 cents. Stanolex furnace oil, 1-149 gallons, 8 cents; 150-399 gallons, 7 cents; 400 gallons and over, 6.5 cents. Stanolex grade A, 1-399 gallons 4.75 cents; 400 gallons and over 3.75 cents. Stanolex grade B, 1-799 gallons, 4.75 cents; 800 gallons and over, 3.75 cents.

Atlantic Coast District

STANDARD OIL CO. OF NEW JERSEY

	Gasoline Tank-wag. dlr.	Gasoline Tank-car con'r.	Gasoline Inc. tax	Kero. tank wag.
Atl'tic City, N. J.	12.9	10.9	4.0	8.0
Newark	12.9	10.9	4.0	8.0
Annapolis, Md.	14.35	12.85	5.0	9.5
Baltimore	13.75	12.25	5.0	8.5
Cumberland	16.15	13.65	5.0	10.0
Wash'g'n, D. C.	12.0	10.50	3.0	9.5
Danville, Va.	16.95	14.45	6.0	12.9
Norfolk	15.75	13.25	6.0	11.5
Petersburg	16.05	13.55	6.0	11.7
Richmond	16.05	13.55	6.0	11.7
Roanoke	17.25	14.75	6.0	11.0
Charles'n, W. V.	16.55	14.05	6.0	12.6
Parkersburg	14.85	13.35	6.0	11.2
Wheeling	15.75	14.35	6.0	12.2
Charlotte, N. C.	18.15	15.65	7.0	12.1
Hickory	18.65	16.15	7.0	12.5
Mt. Airy	18.45	15.95	7.0	12.3
Raleigh	17.75	15.25	7.0	11.6
Salisbury	18.25	15.75	7.0	12.2
Charleston, S. C.	16.75	14.25	7.0	10.6
Columbia	17.75	15.25	7.0	11.6
Spartanburg	18.45	15.95	7.0	12.4

Price basis to commercial consumers effective March 8, 1937, in Maryland, District of Columbia, and in Arlington and Fairfax counties in Virginia; and March 12 in New Jersey: To contract accounts purchasing at least one full compartment at time by hose connection, on yearly purchases: From 2,500 to 100,000 gallons, consumer tank-wagon price at time and place of delivery; 100,000 gallons per year, consumer tankcar price plus .5 cent per gallon. Consumer tank-wagon price generally will be equivalent to dealer tank-wagon price less .5 cent per gallon.

Effective May 15, 1937, in North and South Carolina, West Virginia and Virginia (except Arlington and Fairfax counties): Commercial consumers taking deliveries of 50 gallons (W. Va., 100 gallons) or more at one time will be billed at posted consumer tank-wagon price. Accounts taking deliveries of less than 50 gallons (W. Va., 100 gallons) will be billed at 4 cents per gallon over posted consumer tank-wagon price. Generally the posted consumer tank-wagon price will be the equivalent to the dealer price less .5 cent per gallon.

While the above prices continue at Atlantic City and Newark, N. J., dealers will pay a net price of 8.4 cents per gallon for Essolene. Dealers having pumps marked only "Esso, Essolene and 'Standard White'" gasoline will pay 7.9 cents for Essolene. Price basis to all other undivided dealers above is Essolene dealer tank-wagon price less .5 cent per gallon.

Discount for kerosene, 1 cent off tank-wagon price for 25 gallons or more under contract (contract not necessary in Baltimore) except no discount in New Jersey.

Southern District

STANDARD OIL CO. (KENTUCKY)

	Gasoline Tank-wag.	Gasoline Net dlr.	Gasoline Inc. tax	Kero. tank wag.
Atlanta, Ga.	20.5	17.5	7.0	8.5
Augusta	20.0	17.0	7.0	10.0
Macon	20.0	17.0	7.0	11.0
Savannah	19.0	16.0	7.0	9.0
Birm'ham, Ala.	21.0	18.0	8.0	8.5
Mobile	21.0	18.0	9.0	8.5
Montgomery	21.0	19.0	9.0	10.5
Jackson, Miss.	18.5	15.5	7.0	9.5
Vicksburg	19.5	16.5	7.0	9.0
Jacksonville, Fla.	20.0	17.0	8.0	8.0
Miami	20.0	17.0	8.0	8.0
Pensacola	21.0	18.0	9.0	8.0
Tampa	20.0	17.0	8.0	8.0
Lexington, Ky.	19.5	16.5	6.0	10.0
Covington	17.5	14.5	6.0	9.5
Louisville	17.5	14.5	6.0	9.0
Paducah	19.0	16.0	6.0	9.0

*Includes 1-cent state tax.

Price basis to tank-wagon consumers: Effective January 4, 1937; 3 cents per gallon below tank-wagon price. Effective June 4, 1938, 2 cents per gallons discount eliminated from all kerosene markets in Mississippi, Alabama, Georgia, and Florida, markets being reduced correspondingly to a net basis.

Montgomery, Ala., has a county tax of 1 cent per gallon, and a city tax of 1 cent per gallon on gasoline, in addition to state tax; and 1 cent per gallon on kerosene. Mobile, Ala., has a city gasoline tax of 2 cents per gallon; Birmingham, Ala., has a city gasoline tax of 1 cent per gallon; Pensacola, Fla., has a city gasoline tax of 1 cent.

Rocky Mountain District

CONTINENTAL OIL CO.

	Gasoline Dealer	Gasoline Inc. tax	Kero. tank wag.
Denver, Colo.	15.5	5.0	11.5
Grand Junction	19.0	5.0	15.0
Pueblo	16.5	5.0	10.5
Casper, Wyo.	17.0	5.0	11.5
Cheyenne	13.0	5.0	13.0
Billings, Mont.	18.0	6.0	13.0
Butte	19.5	6.0	15.5
Great Falls	19.0	6.0	15.5
Helena	20.0	6.0	15.5
Salt Lake City, Utah	16.0	5.0	16.0
Boise, Idaho	19.0	6.0	18.0
Twin Falls	19.5	6.0	18.0
Albuquerque, N. M.	17.5	*6.5	12.0

*Includes city tax of .5 cent.

Ohio

STANDARD OIL CO. OF OHIO

	Gasoline Tank-wag. con'r.	Gasoline Di-vided dlr.	Gasoline Inc. tax	Kero. tank wag.
Ohio points	16.0	15.0	5.0	*13.0

*Includes state tax of 1 cent.

Pacific Coast Territory

STANDARD OIL CO. OF CALIFORNIA

	Gasoline Tank-wag.	Gasoline Serv. sta.	Gasoline Inc. tax.	Kero. tank wag.
San Francisco	17.5	18.5	4.0	11.5
Los Angeles	17.0	18.0	4.0	10.0
Fresno, Calif.	18.5	19.5	4.0	12.5
Phoenix, Ariz.	21.5	22.5	6.0	*17.5
Reno, Nev.	20.5	21.5	5.0	13.5
Portland, Ore.	20.0	21.0	6.0	13.5
Seattle, Wash.	20.0	21.0	6.0	13.5
Spokane	23.0	24.0	6.0	16.5
Tacoma	20.0	21.0	6.0	13.5

*Includes 5-cent state tax.

Discounts to dealers: On gasoline, off tank-wagon price, to 100 per cent dealers, 3 cents; to split dealers, 2 cents. To commercial consumers: on tank-wagon price: on single deliveries of 40 gallons and over, advance quantity discount extended at time of delivery, 3 cents. Service station schedule applies on single deliveries less than 40 gallons. On kerosene in tankcar, transport truck and trailer delivery, 3 cents off tank-wagon price; plant deliveries to jobbers, 2.5 cents below tank-wagon.

New York and New England

SOCONY-VACUUM OIL CO., INC.

	Gasoline T'wag. dealer	Gasoline T'car consr.	Gasoline Inc. tax	Kero. tank wag.
Albany	14.3	12.3	5.0	8.0
*Met. N. Y.:				
Manhat., Bronx	13.4	12.25	5.0	8.0
Staten Island	13.4	12.25	5.0	8.0
Q'ns. & Bklyn.	13.4	12.25	5.0	8.0
Buffalo	12.9	12.6	5.0	7.5
Rochester	14.0	13.2	5.0	8.5
Syracuse	14.0	12.9	5.0	8.5
Boston, Mass.	12.5	11.0	4.0	7.5
Portland, Me.	14.0	12.25	5.0	8.75
Manch'ter, N. H.	14.5	12.8	5.0	8.5
Burlington, Vt.	14.7	12.85	5.0	9.5
Springf'd., Mass.	13.0	11.5	4.0	8.0
Worcester	13.0	11.5	4.0	8.0
Hartford, Conn.	13.0	11.4	4.0	7.0
New Haven	12.8	11.3	4.0	6.0
Providence, R. I.	12.5	11.0	4.0	7.5

*Does not include 2 per cent city sales tax which is calculated on basis of net retail price exclusive of state and federal taxes. Metropolitan New York prices are undivided dealer prices; others are split dealer.

Price basis to undivided dealer: Posted dealer tank-wagon price less .5 cent. Price basis to commercial consumer: Effective Nov. 15, 1936, monthly purchases of 25,000 gallons and over, consumer tankcar prices at delivery point plus .5 cent per gallon; monthly purchases of 5,000 to 25,000 gallons, undivided dealer price at delivery point; monthly purchases under 5,000 gallons, pay divided dealer tank-wagon prices at delivery point.

Pennsylvania, Delaware and Part of New England

ATLANTIC REFINING CO.

	Gasoline Tank-wag. dlr.	Gasoline Tank-car con'r.	Gasoline Inc. tax	Kero. tank-wag.
Phil'delphia, Pa.	13.0	12.0	5.0	10.0
Pittsburgh	15.0	13.0	5.0	10.5
Allentown	14.25	12.75	5.0	10.5
Erie	14.5	13.0	5.0	10.0
Scranton	14.5	13.0	5.0	10.5
Altoona	15.0	13.0	5.0	10.5
Dover, Del.	13.5		5.0	10.5
Wilmington	12.5		5.0	9.75

Price basis to undivided dealers, dealer tank-wagon price less .5 cent per gallon. Price basis to commercial consumers in Pennsylvania and Delaware, effective March 11, 1937: Consumers under contract using 100,000 gallons or more per year full compartment hose deliveries, tankcar plus .5 cent. Consumers under contract using less than 100,000 gallons per year compartment hose deliveries, undivided dealer price. Consumers under contract less than full compartment delivery, consumers not under contract, less than full compartment delivery, and consumers not under contract full compartment delivery, divided dealer price. Less than 25 gallons, tank-wagon delivery, 4 cents per gallon above undivided dealer price.

Central South District

STANDARD OIL CO. OF LOUISIANA

	Gasoline Tank-wag. dlr.	Gasoline Tank-car con'r.	Gasoline Inc. tax	Kero. tank wag.
N. Orleans, La.	19.25	16.75	*10.0	†11.0
Baton Rouge	17.25	14.75	8.0	‡10.5
Alexandria	17.25	14.75	8.0	‡12.5
Lafayette	17.50	15.00	8.0	‡12.5
Lake Charles	17.25	14.75	8.0	‡12.5
Shreveport	16.00	13.50	8.0	‡11.0
Knoxville, Tenn.	20.50	18.00	8.0	14.5
Memphis	18.50	16.00	8.0	12.5
Chattanooga	20.00	17.50	8.0	14.0
Nashville	17.50	17.00	8.0	12.0
Bristol	19.00	18.25	8.0	14.5

*Includes 2-cent parish tax. †Includes 1-cent parish tax and 1-cent state tax. ‡Includes 1-cent state tax.

Price basis to commercial consumers: Effective May 15, 1937, deliveries of 50 gallons or more in one delivery takes posted consumer tank-wagon price. Accounts taking deliveries of less than 50 gallons at one time pay posted consumer tank-wagon price plus 4 cents per gallon. Generally, the posted consumer tank-wagon price will be equivalent to the dealer price less .5 cent per gallon. Kerosene prices include 1-cent state tax.

Nebraska

STANDARD OIL CO. OF NEBRASKA

	Gasoline Tank-wag.	Gasoline Dlr.	Gasoline Inc. tax	Kero. tank wag.
Omaha	17.5	16.0	6.0	10.3
McCook	17.5	16.0	6.0	10.0
Norfolk	17.9	14.9	6.0	10.7
North Platte	18.3	15.4	6.0	11.0
Scottsbluff	19.0	13.9	6.0	11.3

Discounts to commercial consumers for tank-wagon deliveries covered only by standard commercial consumers contract, effective Jan. 1, 1935

Oklahoma and Arkansas

CONTINENTAL OIL CO

	Gasoline Dealer	Gasoline Inc. tax	Kero. tank wag.
Muskogee, Okla.	13.5	5.0	7.0
Oklahoma City	12.5	5.0	7.0
Tulsa	12.0	5.0	6.0
Fort Smith, Ark.	14.25	5.0	7.5
Little Rock	16.75	7.5	9.0
Texarkana	14.0	5.0	8.0

Texas

	Gasoline Tank-wag.	Gasoline Serv. sta.	Gasoline Inc. tax.	Kero. tank wag.
Dallas, Tex.	14.0	17.0	5.0	8.0
Fort Worth	15.0	19.0	5.0	8.0
Houston	14.5	19.0	5.0	8.0
San Antonio	14.0	18.0	5.0	8.0

Naphtha

STANDARD OIL CO. (INDIANA)

	Tank-wagon*
Oleum spirits	15.7
V.M.&P. naphtha	16.0
Cleaners' naphtha	15.0
Stanisol	15.0

*Prices include 3-cent Illinois tax, but not 1-cent federal tax or 2 per cent retail occupational tax.

Prices f.o.b. Chicago. Each price subject to discount of 1 cent per gallon for 150-gallon lots if covered by contract.

Canada*

3-Star Imperial Gasoline
IMPERIAL OIL, LTD.

	Tank-wag.	Inc. tax	Kero. tank wag.
Halifax, N. S.	23.5	10.0	17.5
St. John, N. B.	23.5	10.0	17.5
Monteral, Que.	20.0	6.0	14.5
Toronto, Ont.	21.0	6.0	15.5
Hamilton, Ont.	21.0	6.0	15.5
Winnipeg, Man.	27.5	7.0	20.7
Brandon, Man.	28.1	7.0	22.9
Regina, Sask.	26.0	7.0	22.0
Saskatoon, Sask.	28.3	7.0	24.9
Edmonton, Alta.	26.5	7.0	21.5
Calgary, Alta.	23.5	7.0	19.0
Vancouver, B. C.	23.0	7.0	23.0

*Imperial gallon used in Canada.

Divided dealers pay tank-wagon prices. Discount to undivided dealers, 1 cent below tank-wagon price. In maritime provinces both divided and undivided dealers pay tank-wagon price.

Tank-Wagon Changes

Standard Oil Co. (Kentucky) November 1 reduced tank-wagon and dealer gasoline 1 cent in Jackson; advanced tank-wagon and dealer gasoline 1 cent in Paducah. November 9, reduced tank-wagon and net dealer gasoline .5 cent in Covington. November 2, reduced tank-wagon kerosene 1.5 cents in Atlanta. November 15, reduced tank-wagon kerosene 1 cent in Birmingham.

Socony-Vacuum Oil Co., Inc., October 28 reduced tank-wagon kerosene .5 cent in Syracuse.

Continental Oil Co. reduced dealer gasoline October 20 1 cent in Billings; November 3, 1 cent in Salt Lake City; November 5, 1.5 cents in Twin Falls. August 31, 1 cent in Muskogee and Oklahoma City. August 22, reduced tank-wagon kerosene 1 cent in Little Rock.

Del Bonita Operations

On the Del Bonita structure in southern Alberta, Wheatman Petroleums, Ltd., has secured a block of acreage and is planning an early test. The company is backed by Chicago capital. On the same structure, Terminal Oil Co. No. 1 is being cleaned out and put in shape for oil and gas production. Casing is being run to bottom and a perforation gun will be used at the potential production horizon.

Prices of Refined Products

All quotations f.o.b. plant in cars for interstate or export movement except as otherwise noted

Prices as of November 22, 1938

The following quotations are exclusive of the federal excise taxes of 1 cent a gallon on gasoline and 4 cents a gallon on lubricating oils.

Refinery Gasoline

OKLAHOMA (Group 3)—

U. S. Motor grades:		
62 oct. and below	.03¾	.04
63-66 octane	.04	.04¼
67-69 octane	.04⅜	.04⅜
70-72 octane (regular)	.04⅜	.04⅜
60-62 400 grades:		
62 oct. and below	.03¾	.04
63-66 octane	.04	.04¼
67-69 octane	.04⅜	.04⅜
70-72 octane (regular)	.04⅜	.04⅜
64-66 375	.04	.04¼
68-70 360	.05	.05¼

NORTH TEXAS—

U. S. Motor grades:		
62 octane and below	.03¾	.04
63-66 octane	.04	.04¼
67-69 octane	.04⅜	.04⅜
70-72 octane (regular)	.04⅜	.04⅜
60-62 400	.03¾	.04
64-66 375	.04	.04¼

NORTH LOUISIANA (Ark. and N. La. delivery)—

U. S. Motor grades:		
62 octane and below	.04¾	.04½
63-66 octane	.04½	.04⅝
67-69 octane	.04⅝	.04⅞
70-72 octane (regular)	.05¼	.05½

ARKANSAS (Ark. and N. La. del.)—

U. S. Motor grades:		
62 octane and below	.04¼	.04⅜
67-69 octane	.05	.05¼

CHICAGO (Based on Group 3)—

U. S. Motor grades:		
62 octane and below	.03¾	.04
63-66 octane	.04	.04¼
67-69 octane	.04⅜	.04⅜
70-72 octane	.04⅜	.04⅞
60-62 400 grades:		
62 octane and below	.03¾	.04
63-66 octane	.04	.04¼
67-69 octane	.04⅜	.04⅜
70-72 octane	.04⅜	.04⅞
64-66 375	.04	.04¼
68-70 360	.05	.05¼

PENNSYLVANIA (inland refineries)—

58-60 U. S. Motor:		
Below 60 octane	.04¾	.05¼
65 octane		.06¼
68-70 octane		.06⅝

CALIFORNIA (domestic movement)—

54-58 U. S. Motor	.06½	.08
58-60 400, 65 oct. and higher	.07½	.09

EAST COAST (domestic)—

U. S. Motor, 60-64.9 octane:		
New York (Bayonne)	.06	.06¼
Philadelphia	.06	.06¼
Boston	.06¼	.06½
Baltimore	.06	.06¼
Charleston, S. C.	.06¾	.07
U. S. Motor, 65 and above:		
*New York (Bayonne)	.06½	.06⅝
Philadelphia	.06½	.06⅝
Boston	.06½	.06⅝
Baltimore	.06½	.06⅝
Charleston, S. C.	.07	.07¼

*All grades of gasoline one-eighth to one-fourth cent less for barge shipments. New York Harbor prices are for New York and New England delivery. Prices for New Jersey delivery one-fourth cent lower.

GULF COAST (domestic)—

U. S. Motor grades:		
Below 60 octane		.04¼
60-64.9	.04½	.04⅝
65 octane and higher		.04⅝
68-70		.05

Naphtha

PENNSYLVANIA (inland refineries)—

52-56 450 (blending)	.04¾	.04⅞

Natural Gasoline

OKLAHOMA (Group 3)—

Grade 26-70	.03½	.03⅝
Grade 18-55	.03⅝	.03¾

NORTH TEXAS—

Grade 26-70	.02⅞	.03
Grade 18-55		.03⅛

CALIFORNIA—

75-85 375-390	.06¼	.06¾

NORTH LOUISIANA (Ark. and N. La. delivery)—

Grade 26-70		.03¼

Tractor Fuel

OKLAHOMA (Group 3)—

40-42 gr., 315-325 l.b.p., 110-flash, 540-550 e.p.	.03⅞	.04
41-43 gr., 300-320 l.b.p., 110-125 flash, 500-520 e.p.	.04⅛	.04¼
46-48 gr., 210-230 l.b.p., 480 max., e.p.	.04½	.04¾

Kerosene

(All kerosene water white)

OKLAHOMA (Group 3)—

41-43	.04	.04⅛
42-44	.04¼	.04⅜

NORTH TEXAS—

41-43	.04	.04⅛

NORTH LOUISIANA (Ark. and N. La. delivery)—

41-43	.04	.04⅜

ARKANSAS (Ark. and N. La. del.)—

41-43	.04½	.04⅝

PENNSYLVANIA (inland refineries)—

45	.04¾	.05
46	.04⅞	.05⅛
47	.05	.05⅛

CHICAGO (Based on Group 3)—

41-43	.04	.04⅛
42-44	.04¼	.04⅜

CALIFORNIA (Pac. Coast market)—

38-43 high burning test	.04¾	.05¾

NEW YORK (Bayonne, N. J.)—

41-43	.04⅝	.04¾

***GULF COAST (domestic)—**

41-43	.03⅞	.04

*Barge price one-eighth cent lower.

Furnace Oil

OKLAHOMA (Group 3)—

Range oil	.03⅞	.04
No. 1 prime white, 38-42	.03¾	.03⅞
No. 1 straw, 38-40	.03⅝	.03⅞
No. 2 straw, 32-36	.03½	.03¾
No. 2 dark, 32-36	.03⅜	.03½
No. 3 zero to 15, 28-32	.03¼	.03⅜
No. 3, 15 and above, 28-32	.02⅞	.03

NORTH TEXAS—

No. 1 prime white, 38-42	.03¾	.03⅞
No. 1 straw, 38-40	.03⅝	.03⅞

NORTH LOUISIANA (Ark. and N. La. delivery)—

No. 2, 32-36	.03¼	.03½

ARKANSAS (Ark. and N. La. del.)—

No. 2, 32-36		.03⅝

CHICAGO (Based on Group 3)—

Range oil	.03⅞	.04⅛
No. 1 prime white, 38-40	.03¾	.04
No. 1 straw, 38-40	.03⅝	.03⅞
No. 2 straw, 32-36	.03½	.03¾
No. 2 dark, 32-36	.03¼	.03½
No. 3, zero to 15, 28-32	.03¼	.03⅜
No. 3, 15 and above, 28-32	.02⅞	.03

NEW YORK (Bayonne, N. J.)—

*No. 1	.04½	.04⅝
*No. 2		.04
*No. 4		.04

*Barge deliveries one-eighth to one-fourth cent under above tankcar price.

Gas Oil and Fuel Oil

(Gas oil per gal. fuel oil per bbl.)

OKLAHOMA (Group 3)—

U.G.I. gas oil	.02⅞	.03⅛
No. 4, low pourpoint, 24-28	1.00	1.10
No. 4, 15 and above, 24-28	.85	.90
No. 5, low pourpoint, 18-22	.70	.75
Below 18 fuel oil, industrial	.50	.60

NORTH TEXAS—

U.G.I. gas oil	.02⅞	.03⅛
No. 4, low pourpoint, 24-28	1.00	1.10
No. 5, low pourpoint, 18-22	.70	.75
Below 18 fuel oil, industrial	.50	.60

NORTH LOUISIANA (Ark. and N. La. delivery)—

10-14 fuel oil, industrial	.70	.75

CHICAGO (Based on Group 3)—

U.G.I. gas oil	.02⅞	.03
No. 4, low pourpoint, 24-28	1.00	1.10
No. 4, 15 and above, 24-28	.85	.95
No. 5, low pourpoint, 18-22	.70	.80
No. 5, 15 and above, 18-22	.60	.70
No. 6, low pourpoint, 10-16	.60	.70
No. 6, 15 and above, 10-16	.35	.45

PENNSYLVANIA (inland refineries)—

36-40	.03⅞	.04⅝

CALIFORNIA—

Los Angeles:		
30-40 gas oil, per bbl.	1.15	1.35
24 plus Diesel, per bbl.	1.00	1.30
24 plus Diesel (bunkers)	1.20	1.50
12-16 (bunkers at tidewater)	.80	.90
10-16 (cargo lots)	.65	.85
12-17 (tankcars)	.50	.85
10-17 (high sulfur)	.45	.70
San Joaquin Valley:		
10-18 (tankcars)	.50	.80
24 plus Diesel, per bbl.	1.15	1.40
San Francisco:		
24 plus Diesel, per bbl.	1.40	1.45
24 plus Diesel (bunkers)	1.45	1.55
10-16 (bunkers)	.90	.95

GULF COAST—

No. 2 fuel		.03⅜
43-47 Diesel		.03½
48-52 Diesel	.03½	.03⅝
53-57 Diesel	.03⅝	.03¾
Bunkers (bulk cargoes)	.60	.65
Bunker C (bunkers)		.75

NEW YORK (Bayonne, N. J.)—

27 plus, gas oil		.04¼
28-30 Diesel (lighterage 6¼c per bbl.)		1.75
28-30 Diesel (tankcars)	.04¼	.04½
Bunker C (to ocean-going ships in N. Y. Harbor)		.95
Industrial fuel (tankcars)	.03¾	.04

Lighterage charge 5c bbl. additional.

Bright and Steam Refined

OKLAHOMA (Group 3)—

190-200 D, 15-25		.19
150-160 D, 0-10	.14¼	.16
150-160 D, 15-25	.13½	.15½
150-160 E, 15-25	.13	.15
100-110 D, 0-10		.14½
Steam refined:		
631 green (treated)		.12½
600 dark green (untreated)	.04½	.05

PENNSYLVANIA—

Bright Stocks (Pennsylvania Grade No. 8 color, 140-150 at 210, 545-550 flash):		
10 pourpoint	.17	.17½
15 pourpoint	.16	.16½
20 pourpoint	.15	.15½
25 pourpoint	.14	.14½
Steam refined:		
600	.08	.08½
650	.10	.10½
600 Pennsylvania flash	.10½	.11
630 flash	.13½	.14
600 Warren E filtered	.12½	.13

Neutral Oil

(Vis. at 100° F. except Pennsylvania and color N.G.A.)

OKLAHOMA (Group 3)—

150-3		.09
180-3		.10
180-4		.09½
200-3		.10½
200-4		.10
250-3		.11½
250-4		.11
280-3		.12½
280-4		.12
300-6½		.13
400-3½		.14
100-2½ paraffin oil		.06
15-20 pourpoint:		
200-3		.10
200-4		.09½
250-3		.11
250-4		.10½
280-3		.12
280-4		.12½

GULF COAST—

Pale oils:		
200-3	.07	.07¼
300-3	.07½	.07⅝
500-3½	.08⅛	.08⅜
750-3½	.08⅝	.09⅛
1,200-3½	.09⅛	.09⅜
1,500-4	.09¾	.10
Red oils:		
200-5-6	.07¼	.07½
300-5-6	.07¼	.07½
500-5-6	.08	.08½
750	.08¾	.09
1,200-5-6	.09¼	.09½

CALIFORNIA (moving to dom. market)—

Pale oils:		
100-2½-3	.07¼	.08
200-2½-3	.07¼	.08
300-2½-3	.07¼	.08
400-3-4	.07¼	.08
450-3-4	.07¼	.08
550-3-4	.09	.11
600-3-4	.09	.11
Red oils:		
200-4-5	.07¼	.08
300-5-6	.07¼	.08
350-5-6	.09¼	.11½
400-5-6	.09¼	.11½
450-5-6	.09¼	.11½
500-5-6	.09¼	.11½
600-5-6½	.09¼	.11½
700-6½ plus	.09¼	.11½
750-6½ plus	.09¼	.11½
900-6½ plus	.09¼	.11⅝

PENNSYLVANIA—

150 vis. at 70° color, 400-405 flash:		
Zero pourpoint	.17	.17½
10 pourpoint	.16	.16½
15 pourpoint	.15	.15½
25 pourpoint	.14	.14½
200 vis. at 70° F., 3 color:		
Zero pourpoint	.19	.19½
10 pourpoint	.18	.18½
15 pourpoint	.17	.17½
25 pourpoint	.16	.16½

Wax and Petrolatum

(Prices per pound)

OKLAHOMA (Group 3)—

124-126 (a.m.p.) w.c. scale	.02¼	.02½

PENNSYLVANIA (inland refineries)—

122-124 (a.m.p.) w.c. scale	.0235	.0245
124-126 (a.m.p.) w.c. scale	.0235	.0245

NEW YORK—

Wax in bags fully refined:		
122-125 (a.m.p.) wax		.0375
125-127 (a.m.p.) wax		.0390
128-130 (a.m.p.) wax		.0400
130-132 (a.m.p.) wax		.0435
133-135 (a.m.p.) wax		.0465
135-137 (a.m.p.) wax		.0490
124-126 (a.m.p.) w.s.		.0230
124-126 (a.m.p.) y.s.		.0230
Petrolatum in barrels, carload lots:		
Dark green	.02	.02¼
Amber	.02¾	.02½
Extra amber	.02½	.02¾
Lily white	.05½	.05¼
Snow white	.06¼	.06¼
Cream	.04¼	.04¼

Export Prices

GASOLINE

GULF COAST—

U. S. Motor	.04¾	.04½
60-62 400	.04¾	.04½
61-63 390	.04½	.04⅝
64-66 375	.04½	.04⅝

LOS ANGELES—

U. S. Motor grades:		
55-65 octane		.05
65-69 octane		.05¼
Above 69 octane		.05½

KEROSENE

GULF COAST—

41-43 prime white	.03⅞	.04
41-43 water white	.03⅞	.04

LOS ANGELES—

41-43 water white	.05	.05¼

LUBRICANTS

(Pennsylvania Grade)

NEW YORK (l.a.s. in bbls.)—

Cylinder stocks:		
600 Warren E	.15	.15½
600 S.R. unfiltered	.16	.16½
630 S.R. unfiltered	.17	.17½
600 flash, S.R.	.17	.17½
630 flash, S.R.	.20½	.21
Bright stock:		
8 color	.16¼	.16½

NEUTRAL OIL

200-3 color	.21½	.22
150-3 color	.19½	.20

PARAFFIN WAX

NEW YORK (prices per pound)—

123-125 a.m.p.		.0375
125-127 a.m.p.		.0387
128-130 a.m.p.		.0412
133-135 a.m.p.		.0437
135-137 a.m.p.		.0455
Crude scale:		
124-126 w.s.	.0185	.0200
124-126 y.s.	.0185	.0200

Crude Oil Prices

Oklahoma, Kansas, North Central and East Central Texas

East Texas (Oct. 11, 1938)* $1.10
Van, Tex. (Oct. 11, 1938)* ..... .93
Talco, Tex. (Oct. 11, 1938)* ..... .55
Rodessa, Tex. .....
See North Louisiana gravity schedule

Cass and Panola counties, Texas
See gravity schedule
Altus and Tipton† .....See note below
Cayuga, Tex. (Oct. 12) ..... .81
Clay Creek, Tex. ..... .85

*Humble Oil & Refining Co. †Gulf Refining Co.

Altus and Tipton, Okla., starting at below 25 degrees at 71 cents, 2-cent spread to 40 degrees and above at $1.03. East Texas price met by all buyers posting prices. Talco price adopted by Talco Pipe Line on October 11. Cayuga posted by Tide Water Associated Oil Co. Clay Creek posted by Sun Oil Co.

Crude Prices by Gravities

	Oklahoma	Oklahoma and Kansas	North and Central Texas	Louisiana and Arkansas	East Central Texas	Gray County, Texas	Hutchinson and Carson counties, Texas	Raccoon Bend, Satsuma and Tomball, Texas	West Texas and Lea County, N. M.	Fort Collins and Wellington, Colo.	Anahuac and Dickinson, Texas	Refugio, Texas	Mirando and Duval Texas	Gulf Coast Texas	Cass and Panola counties, Texas	Beaumont and West Beaumont, Texas	Lockport, Iowa, Cameron Meadows, Louisiana	Artesia, Jackson and Maljamar, N. M.	Iowa, Louisiana
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Below 18	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	$.74	....	$.75
18-18.9	....	....	....	....	....	....	....	....	$.53	....	$.74	$.79	$.74	$.79	....	....	.76	....	.77
19-19.9	....	....	....	....	....	....	....	....	.53	....	.74	.79	.74	.79	....	$.79	.78	....	.79
20-20.9	$.60	$.70	....	....	....	....	....	....	.55	....	.77	.82	.77	.82	....	.82	.80	....	.81
21-21.9	.63	.72	....	....	....	....	....	....	.57	....	.80	.85	.80	.85	....	.85	.82	....	.83
22-22.9	.66	.74	....	....	....	....	....	$.95	.59	....	.83	.88	.83	.88	....	.88	.85	....	.86
23-23.9	.69	.76	....	....	$.78	....	....	.97	.61	....	.86	.91	.86	.91	....	.91	.88	....	.89
24-24.9	.72	.78	$.71	....	.80	....	....	.99	.63	....	.89	.94	.89	.94	....	.94	.91	....	.92
Below 25	....	....	....	$.73	....	....	....	....	....	....	....	....	....	....	$.73	....	....	....	....
25-25.9	.75	.80	.73	.75	.82	....	....	1.01	.65	....	.92	.97	.92	.97	.75	.97	.94	....	.95
26-26.9	.78	.82	.75	.77	.84	....	....	1.03	.67	....	.95	1.00	.95	1.00	.77	1.00	.97	....	.98
27-27.9	.81	.84	.77	.79	.86	....	....	1.05	.69	....	.97	1.02	.97	1.02	.79	1.02	.99	....	1.00
28-28.9	.84	.86	.79	.81	.88	$.72	$.67	1.07	.71	$.81	.99	1.04	.99	1.04	.81	1.04	1.01	$.61	1.02
29-29.9	.87	.88	.81	.83	.90	.74	.69	1.09	.73	.83	1.01	1.06	1.01	1.06	.83	1.06	1.03	.63	1.04
Below 30	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
30-30.9	.90	.90	.83	.85	.92	.76	.71	1.11	.75	.85	1.03	1.08	1.03	1.08	.85	1.08	1.05	.65	1.06
31-31.9	.92	.92	.85	.87	.94	.78	.73	1.13	.77	.87	1.05	1.10	1.05	1.10	.87	1.10	1.07	.67	1.08
32-32.9	.94	.94	.87	.89	.96	.80	.75	1.15	.79	.89	1.07	1.12	1.07	1.12	.89	1.12	1.09	.69	1.10
33-33.9	.96	.96	.89	.91	.98	.82	.77	1.17	.81	.91	1.09	1.14	1.09	1.14	.91	1.14	1.11	.71	1.12
34-34.9	.98	.98	.91	.93	1.00	.84	.79	1.19	.83	.93	1.11	1.16	1.11	1.16	.93	1.16	1.13	.73	1.14
Below 35	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
35-35.9	1.00	1.00	.93	.95	1.02	.86	.81	1.21	.85	.95	1.13	1.18	1.13	1.18	.95	1.18	....	.75	....
36-36.9	1.02	1.02	.95	.97	1.04	.88	.83	1.23	.87	.97	1.15	1.20	1.15	1.20	.97	1.20	....	.77	....
37-37.9	1.04	1.04	.97	.99	1.06	.90	.85	1.25	.89	.99	1.17	1.22	1.17	1.22	.99	1.22	....	.79	....
38-38.9	1.06	1.06	.99	1.01	1.08	.92	.87	1.27	.91	1.01	1.19	1.24	1.19	1.24	1.01	1.24	....	.81	....
39-39.9	1.08	1.08	1.01	1.03	1.10	.94	.89	1.29	.93	1.03	1.21	1.26	1.21	1.26	1.03	1.26	....	.83	....
40 and over	1.10	1.10	....	1.05	1.12	....	....	....	.95	1.05	....	....	....	1.28	1.05	1.28	....	.85	....
40-40.9	....	....	1.03	....	....	.96	.91	1.31	....	....	1.23	1.28	1.23	....	....	....	....	....	....
41-41.9	....	....	1.05	....	....	.98	.93	1.33	....	....	1.25	1.30	1.25	....	....	....	....	....	....
42-42.9	....	....	1.07	....	....	1.00	.95	1.35	....	....	1.27	1.32	1.27	....	....	....	....	....	....
43-43.9	....	....	1.09	....	....	1.02	.97	1.37	....	....	1.29	1.34	1.29	....	....	....	....	....	....
44-44.9	....	....	1.11	....	....	1.04	.99	1.39	....	....	1.31	1.36	1.31	....	....	....	....	....	....
45 and over	....	....	1.13	....	....	1.06	1.01	1.41	....	....	1.33	1.38	1.33	....	....	....	....	....	....

Column 1—Magnolia Petroleum Co., effective October 12, 1938. Shell Petroleum Corp., effective October 22, 1938, in Oklahoma and Kansas; Mid-Continent Petroleum Corp., in Oklahoma, starting at 21 degrees at 63 cents, effective October 15, 1938.

Column 2—Standard Oil Co. of Indiana, effective October 11, 1938, below 29 degrees 86 cents, with 2-cent spread to 40 and over at $1.10. Same company on October 17 revised the schedule to start at below 21 degrees at 70 cents, with 2-cent spread to 40 and over at $1.10. Sinclair Prairie Oil Marketing Co. schedule started at below 25 degrees, 60 cents; 25-25.9, 80 cents with 2-cent differential up to $1.10 for 40 degrees and over, effective October 11, but was revised on October 14, starting at 21 gravity, 63 cents, with a 3-cent spread to 30-30.9 dgrees at 90 cents, then a 2-cent spread to 40 degrees and over at $1.10. Gulf Oil Corp. schedule starts at below 25 degrees, 78 cents, with 2-cent differential up to $1.10 for 40 degrees and over, effective October 13. Shell Petroleum Corp. schedule same as that of Gulf, effective October 13 to October 21 (see Column 1). The Texas Co. schedule starts at 28-28.9 degrees, 86 cents, with top of $1.10 for 40 degrees and over. Pure Oil Co. same as Standard of Indiana's October 11 schedule, effective October 14.

Column 3—Humble Oil & Refining Co. in Central Texas, effective October 11. Magnolia Petroleum Co. schedule in North and Central Texas, same as the Humble, excepting that it starts at below 29 degrees at 79 cents, effective October 12. The Texas Co. schedule in North and Central Texas, same as Magnolia's except that it stops at 40 degrees and over at $1.03, effective October 12. Gulf Refining Co. same as the Texas Co., effective October 13. Sinclair Prairie Oil Marketing Co., in Mexia and North Central Texas, below 29 degrees, 76 cents, with 2 cents added for each degree up to and including 40 and over at $1, effective October 11. Stanolind Oil Purchasing Co. schedule started at below 29 degrees at 79 cents with a top of $1.03 for 40 degrees and over, effective October 11, but was revised on October 17 to read below 21 degrees, 60, cents, with a 2-cent spread to 40 degrees and over at $1.

Column 4—Standard Oil Co. of Louisiana, effective October 5, 1938. Met by Gulf Refining Co. October 13; met by Texas Co. October 12.

Column 5—Humble Oil & Refining Co., October 11, 1938.

Column 6—Humble Oil & Refining Co., effective October 11, 1938. Met by Sinclair Prairie Oil Marketing Co., stopping at 40 degrees at 96 cents, October 11. Texas Co. quotes "Panhandle sweet crude," beginning with 34-34.9 degrees, at 84 cents, with 2-cent spread to 40 and over at 96 cents, and "Panhandle sour crude," 79 cents for 34-34.9 degrees, with a top of 91 cents for 40 degrees and over, effective October 12. Magnolia Petroleum Co. met Humble prices throughout, effective October 12. Gulf Refining Co. quotes "Panhandle sweet crude" at below 29 degrees, 72 cents with a 2-cent spread, and a top price of 96 cents for 40 degrees and above, and "Panhandle sour crude" below 29 degrees, 67 cents, with a top of 91 cents for 40 degrees and above. effective October 13. Phillips Petroleum Co. schedule for sweet crude in the Gray, Carson and Hutchinson counties, starts at below 29 degrees, 64 cents, with a spread of 2 cents up to 88 cents for 40 degrees and over, effective October 12.

Column 7—Humble Oil & Refining Co., effective October 11, 1938. Met by Sinclair Prairie Oil Marketing Co., stopping at 40 degrees and over at 91 cents. Texas Co. quotes "Panhandle sweet crude" at 34-34.9 degrees, 84 cents, with a top of 96 cents for 40 gravity, and "Panhandle sour crude" at 34-34.9 degrees, 79 cents, with a top of 91 cents for 40 degrees and over, effective October 12. Gulf Refining Co. quotes "Panhandle sweet crude" at below 29 degrees, 72 cents, with a top of 96 cents for 40 degrees and over and "Panhandle sour crude" at below 29 degrees, 67 cents, with a top of 91 cents for 40 degrees and above, effective October 13. Phillips Petroleum Co. schedule for sour crude in Carson, Moore and Hutchinson counties, starts at below 29 degrees at 59 cents, with 2-cent spread up to 83 cents for 40 degrees and over, effective October 12.

Column 8—Humble Oil & Refining Co., effective October 11, 1938. Magnolia Petroleum Co., in Tomball, effective October 12.

Column 9—Humble Oil & Refining Co., effective October 11, 1938. The Texas Co. schedule starts below 26 degrees, 65 cents, and ends at 36 degrees and over at 87 cents, effective October 12. Gulf Refining Co. starts at below 26 degrees at 65 cents and ends at 40 degrees and over at 95 cents, effective October 13. Magnolia Petroleum Co. schedule starts below 25 degrees, 63 cents, and ends at 40 degrees and above at 95 cents, effective October 12. Sinclair Prairie Oil Marketing Co. schedule same as that of Magnolia, effective October 11. Stanolind Oil Purchasing Co. schedule same as that of Humble, effective October 11. Stanolind Oil & Gas Co. (Winkler County) starts at below 26 degrees, 65 cents, with a 2-cent spread, and a top of 95 cents for 40 degrees and above, effective October 11.

Column 10—Continental Oil Co., effective October 11, 1938.

Column 11—Humble Oil & Refining Co., effective October 11, 1938. Met by Gulf Refining Co. in Anahuac, but stopping at 40 and above at $1.23, effective October 12.

Column 12—Humble Oil & Refining Co., effective October 11, 1938. Met by the Texas Co. starting at below 21 degrees at 81 cents and stopping at 28 and above at $1.04.

Column 13—Humble Oil & Refining Co. in Mirando, effective October 11, 1938. The Texas Co. schedule in Mirando and Duval starts at below 21 degrees, 77 cents, with 3-cent spread to 28-28.9 degrees at 99 cents.

Column 14—Posted by Humble Oil & Refining Co., effective October 11, 1938. The Texas Co. schedule in coastal Texas and Louisiana, starts at below 21 degrees, 82 cents, with 3-cent differential up to 26-26.9 at $1 and then a 2-cent differential to top of $1.16 for 34 degrees and above, effective October 12. Gulf Refining Co. schedule on Louisiana Gulf Coast starts at below 18 gravity, 76 cents, with 2-cent spread to 20-20.9 degrees at 82 cents, then a 3-cent spread to 26-26.9 degrees at $1, then a 2-cent spread to a top of $1.16 for 34 degrees and over, effective October 12. Sun Oil Co. met Humble prices October 13, stopping at 34 degrees and over at $1.16.

Column 15—Magnolia Petroleum Co., effective October 12, 1938.

Column 16—Stanolind Oil & Gas Co. in West Beaumont, effective October 11, 1938, and Magnolia Petroleum Co. in Beaumont field, effective October 12.

Column 17—Magnolia Petroleum Co., effective October 12, 1938. Column 18—Continental Oil Co., effective October 11, 1938. Column 19—Shell Petroleum Corp., October 11, 1938.

Gulf Coast

Conroe, Tex. (Oct. 11, 1938)* $1.27
Black Bayou and White Castle, La. (Oct. 11, 1938)† .....See note below
Gibson, La. (Oct. 11, 1938)† 1.04
Garden Island, La. (Oct. 12, 1938)‡ 1.24
Lafitte, La. (Oct. 12, 1938)‡ 1.04
Cleveland, Tex. (Oct. 12, 1938)¶ 1.14
Hardin, Tex. (Oct. 12, 1938)¶ 1.02
Tepetate, La. (Oct. 11, 1938)§ 1.03
Villa Platte, La. (Oct. 11, 1938)§ 1.03
Abbeville, La. (Oct. 11, 1938)§ .....
See note below
Bosco, La. (Oct. 13, 1938)‖ 1.02
Creole, La. (Oct. 12, 1938)‖ ..... .96
Gueydan, Sweet Lake and Louise, La. (Oct. 13, 1938)‖ .....See note below
Vinton, Edgerly, Starks, Hackberry, Timbalier Bay, Quarantine Bay, and Grand Bay, La. (Oct. 13, 1938)** .....
Long Lake, Tex. (Oct. 13, 1938)** 1.08
Segno and Wing (Oct. 13, 1938)** .....
See note below
Livingston (Oct. 11, 1938)† 1.10
Gibson, La. (Oct. 11, 1938)† 1.04

*Humble Oil & Refining Co. †Shell Petroleum Corp. ‡The Texas Co. §Continental Oil Co. ¶Magnolia Petroleum Co. ‖Pure Oil Co. **Gulf Refining Co.

Black Bayou, etc., starts at below 20 degrees at 79 cents; 20-20.9, 81 cents; 21-21.9, 83 cents, then a 3-cent spread to 26-26.9 degrees, 98 cents, and 27 degrees and over $1. Abbeville starts at below 36 degrees, $1.01, 2-cent spread to 40 degrees and over at $1.11. Gueydan, etc., starts at below 20 degrees, 79 cents, 3-cent spread to 26-26.9 degrees at $1, and 2-cent spread to 40 degrees and over at $1.28. Segno and Wing take Gulf Refining Co.'s Gulf Coast prices. Vinton, Edgerly, etc., schedule starts at below 18 gravity, 76 cents, 2-cent spread to 20-20.9 at 82 cents; then a 3-cent spread to 26-26.9 at $1; then a 2-cent spread to 34 degrees and over at $1.16.

Southwest Texas

Salt Flat, Darst Creek, Hilbig, Carroll, Clark and Zoboroski (Oct. 11, 1938)* ..... $ .96
Pettus (Oct. 11, 1938)* 1.29
Flour Bluff (Oct. 11, 1938)* 1.27
Darst Creek (Oct. 12, 1938)† ..... .96
Darst Creek and Bruner (Oct. 13, 1938)‡ ..... .96
Luling (Oct. 12, 1938)† ..... .87
Lytton Springs (Oct. 12, 1938)† ..... .99
Mirando (Oct. 12, 1938)† .....
Government Wells (Oct. 13, 1938) .....
See note below

*Humble Oil & Refining Co. †Magnolia Petroleum Co. Pettus price adopted by Atlantic Crude Oil Purchasing Co. ‡Gulf Refining Co.

Government Wells posted by Sun Oil Co. starts at 20 gravity, 77 cents, 3-cent spread to 24-24.9 at 89 cents.

North Louisiana and Arkansas

Smackover, Ark. (Oct. 5, 1938)* ... $ .78
Buckner, Magnolia and Village, Ark. (Oct. 5, 1938)* ....See note below
Schuler, Jones sand .....See note below
Tullos and Urania ..... .89
El Dorado east field .....
Lisbon, La. (Sept. 19, 1938) .....
See note below

*Smackover posted by Standard Oil Co of Louisiana, October 5, 1938; by Magnolia Petroleum Co., October 12; by Gulf Refining Co., October 13; McMillan Refining Co. and Cross Refining Co. met price. Tullos and Urania posted by Hunt Oil Co. and Arkansas Fuel Oil Co.

Schuler Jones sand schedule starts at below 25 degrees, 66 cents, with 2-cent spread to 40 and over at 98 cents; by Lion Oil Refining Co. on October 5, 1938. Schuler light Morgan sand crude takes North Louisiana gravity scale along with El Dorado and Champagnolie; by Lion Oil Refining Co., October 5; Buckner, Magnolia and Village schedules posted by Standard Oil Co. of Louisiana and Lion Oil Refining Co. on October 5; quote same prices as for Schuler Jones sand crude.

Middle Western States

OHIO OIL CO.
(Effective October 13, 1938)

Lima, Ohio ..... $ .90
Illinois old fields 1.05
Illinois basin 1.15
Princeton, Ind. 1.05
Western Kentucky 1.10
Greendale, Porter and Crystal, Mich. (Oct. 13, 1938)* ..... .92½
Buckeye, Bentley, Edenville, Beaverton, Mich. (Oct. 13, 1938)* .... .90
Freeman, Mich. (Oct. 13, 1938)* .. .87
West Branch and Arenac, Mich. (Oct. 13, 1938)* ..... .74
Muskegon 1.00
Eastern Kentucky:
Big Sandy River (Oct. 1, 1938)† . 1.22
Kentucky River (Oct. 1, 1938)† . 1.30

*Simrall Corp. †Ashland Refining Co.

Rocky Mountain States

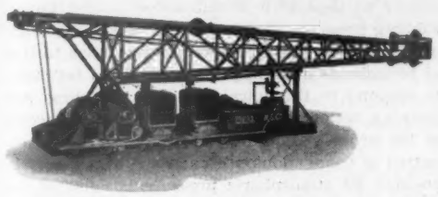
Dry Creek, Wyo. (Oct. 11, 1938)* .. $ .92
Elk Basin, Wyo. (Oct. 11, 1938)*† .. .90
Grass Creek, light, Wyo. (Oct. 11, 1938)*† ..... .90
Grass Creek, heavy (Oct. 11, 1938)† .40
Lance Creek, Wyo. (Oct. 11, 1938)* .77
Rock Creek, Wyo. (Oct. 11, 1938)*. 1.00
Iles, light Colo. (Oct. 11 1938)*† .. .98

(Continued on Page 119)

New or Improved Equipment

National Ships 3 Portable Rigs for Drilling in Foreign Fields

The unceasing hunt for oil is evidenced by the recent shipment to one of the most active foreign fields of three complete portable drilling units by



the National Supply Co. The machines were to be used in isolated territory. Capable of drilling to 1,000 feet, these units include the derrick, engines, hoist, rotary machine, and slushpumps, all mounted on a truss-wheel wagon. The three rigs were dismantled and sent by rail to New York for transshipment.

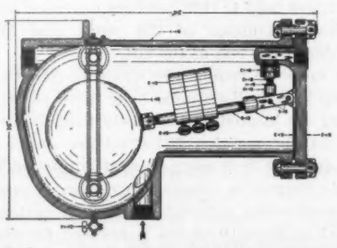
Two internal combustion engines are provided on each unit, one for drilling and hoisting and one for operating the slushpump. The engines are set parallel and a drive connecting the pump engine and the hoisting engine is provided. This permits use of the pump engine for coming out of the hole in an emergency. The units employ a mechanical means for feeding the bit. According to the company, the mechanical feed is of simpler construction and faster.

An outstanding feature is the convenient automatic connection between the swivel and the drillstem. The drillpipe is coupled directly to the swivel, which in turn is driven by the drillstem. No time is lost adjusting chuck-screws, and once the connection is made there is no chance of slipping.

A 4½ by 6 duplex slushpump is provided on the front end of the frame. A 33-foot derrick of 12-ton capacity is easily raised and lowered by a special winch and cable. The units are sturdily constructed, and it is only necessary to lower the derrick for long trips. The rotary and swivel provided were especially designed for portable drilling work. Each is fully enclosed and equipped with antifriction bearings throughout. Complete equipment for night drilling is provided. All the chain drives have machine-cut sprockets and are fully protected by metal guards. The controls are convenient to the driller at the left side of the rotary machine.

Friction Is Reduced to Minimum in Hanlon-Waters Drainer

The Hanlon-Waters Type 91 Duo-Gravity drainer, introduced by Hanlon-Waters, Inc., Tulsa, is



designed for continuously draining water condensate from vessels containing oils or distillates. It is for use also on water knockout trays of gasoline plant stills, reflux accumulators, as well as for gasoline run tanks.

The bodies are available in either semi-steel for 150 pounds working pressure, or electric cast steel for 500 pounds working pressure. The valve plugs and renewable seats are of 18-8 stainless steel, as are the float ball and fulcrum pins.

Absence of stuffing-boxes reduces operating friction and maintenance to a minimum. Friction-free, positive action insures tight closure when no water is being formed to prevent the loss of gasoline or oil. The float is counterweighted so that the float will sink in the oil and float on the water and ride on the interface. Absence of outside levels, counterweights, and adjustments prevents tampering by unauthorized persons. All internal working parts are readily accessible by removing the head flange without disturbing the equalizing piping connections. The valve plug and seat are easily renewed, or can be replaced with larger or smaller sizes as desired. Overall construction is rugged and fool-proof. Complete capacity and calculation charts are available.

Here and There With Men Who Manufacture Equipment

D. Bradley Waite, sales manager of the Pacific Pump Works, Huntington Park, Calif., is visiting the oil fields of Trinidad and Venezuela. He expects to return to California this month.

The Carondelet, Mo., plant of the Phosphate Division of Monsanto Chemical Co. has been awarded the star pennant for outstanding good housekeeping and cleanliness in the group made up of smaller Monsanto plants.

Sale of nearly $1,000,000 worth of propulsion and other marine gear to the Standard Oil Co. of New Jersey has been announced by the Westinghouse Electric & Manufacturing Co. This material will be used in the outfitting of a fleet of 12 new twin-screw oil tankers embodying national-defense features.

Wilder A. Chapman has been appointed manager of laboratories for Robert W. Hunt Co., Engineers, with headquarters in Chicago. He is a graduate of Tufts College with a B.S. in chemistry, and is a member of the American Society for Metals, American Chemical Society, and other technical bodies of the Pulp and Paper Industry and of the Standards Committee of this association.

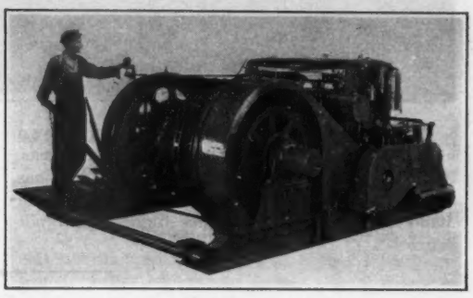
L. G. "Pat" Robinson, formerly division manager in San Joaquin Valley for Security Engineering Co., Inc., Whittier, Calif., is taking an extended survey trip through Illinois, Oklahoma, and Texas in the interests of the company. H. E. Thompson has joined Security's sales department in Whittier.

Features of the Bridgeport-Pratt portable oil-treater are emphasized in the current number of the Bridgeport Bulletin, published by Bridgeport Machine Co., Wichita, Kans.

Morris W. Kellogg, president of the M. W. Kellogg Co., president of the Canadian Kellogg Co., Ltd., a director of the Gasoline Products Co., and a member of the executive committee and a director of the American Can Co., has been elected a director of the Guaranty Trust Co., New York.

Rotary Attachment Is Feature of New Isco Spudder Winch

The new Isco spudder winch, Model 110, announced by International Supply Co., offers versatility and quick conversion for rotary drilling,



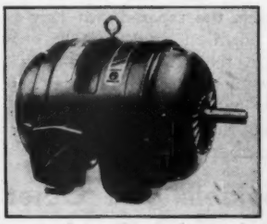
cable-tool drilling and well-servicing purposes. In just three hours, according to the manufacturers, the winch can be converted into a rotary drawworks, with a capacity of 4,000 feet with 4-inch drillpipe, by adding the rotary drive sprocket and cathead assembly. In five hours the spudder attachment and upper drum assembly convert the unit for cable-tool drilling to a depth of 6,000 feet.

For well servicing the winch will handle rod and tubing jobs up to 10,000 feet and cleanout work up to 6,000 feet. The unit can be installed on derrick floor or truck-mounted for drilling, or truck-mounted for well servicing.

All controls are assembled at the driller's position. Large brakes and drum assembly are an advantage. The unit is easily portable, weighing 11,000 pounds without engine. Power, gas or Diesel up to 150 hp. with a maximum torque of 550 foot-pounds. The spooling capacities of the upper drum are 6,300 feet of three-fourths inch line, 4,500 feet of seven-eighths inch line, and 3,400 feet of 1-inch.

New Series of Explosion-Proof Motors Is Announced by F-M

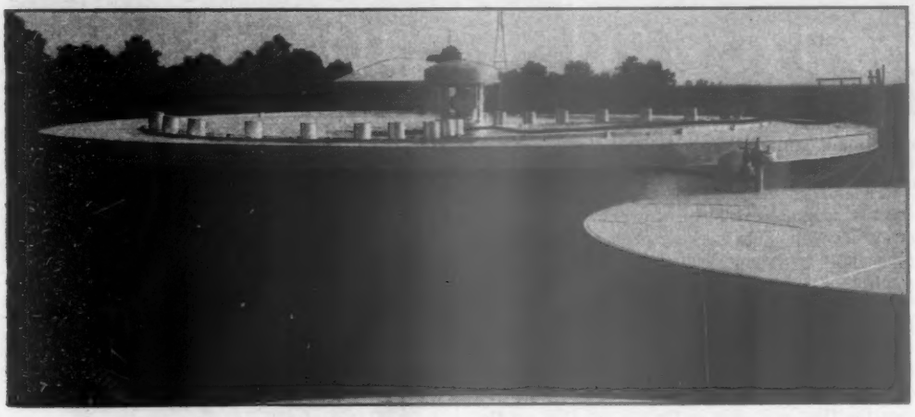
A new line of explosion-proof ball-bearing motors has been announced by Fairbanks, Morse & Co., 600 South Michigan Avenue, Chicago. These



motors, approved by Underwriters' Laboratories for Class I Group D hazardous locations, are said to insure against accidental ignition or explosion of vapors or gases which are prevalent in plants producing or employing gasoline, acetone, alcohols, volatile oils or combustible gases.

F-M explosion-proof motors are built in NEMA frames and can be applied to pumps, blowers, production machines, etc., as easily as any standard open motor. Double-end ventilation is one of the features built into these new motors, to assure positive cooling from both ends of the motor and to eliminate "hot spots," thus adding to the life of the motor windings. The construction and various features of this new line of motors are described in Bulletin 1225, available free upon request.

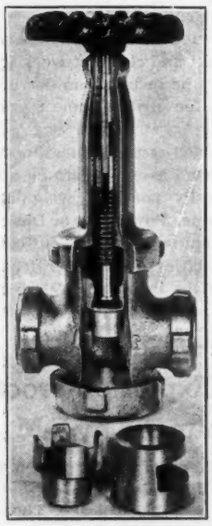
WIGGINS BALLOON ROOF INSTALLATION IN FLORIDA



The Wiggins balloon roof installation shown here is at the Citizens Oil Co. terminal, St. Marks, Fla. The tank equipped with the balloon roof has a capacity of 12,500 bbls. It is 53 feet 6 inches in diameter and 31 feet 6 inches high. The vapor space of the smaller tank located adjacent to the tank with the balloon roof is connected into it. In this way, the balloon roof takes care of the expansion and contraction of the vapor in both tanks.

Monat Packless T Globe Valve Offers Exclusive Features

Monat Valve & Forge Co., 1025 Bessemer Building, Pittsburgh, Pa., is now manufacturing a new packless T globe valve which has several exclusive features. These valves, designed for pressures varying from 150 to 1,500 pounds, and temperatures up to 1,100° F., are available in sizes ranging from one-half inch to 4 inches.



Outstanding features include the patented all-metal-against-metal construction, eliminating the necessity for the packing gland, packing and packing nut, and the "Veriquick" renewable seat and slip disc of high Brinell metals which can be changed without removing the valve from the line.

To insert a new seat, the cap is unscrewed from the base, the tapered seat ring is ejected by screwing down on hand wheel, a new seat ring is slipped in, the base-cap is tightened, and the line is ready for service. The change can be made swiftly, eliminating the necessity of removing the valve from the line.

Bulletins, Booklets and Other Literature for the Trade

Completion by Jones & Laughlin Steel Corp. of its latest unit, the Gilmore Wire Rope Division, at Muncy, Pa., is announced in an attractively printed deckle-edge booklet. Views of the plant and a description of the product are given.

A 4-page bulletin on regular and heavy-duty type Superior sand-pumps has been issued by Oil Well Supply Co.

"Determination of operating points of centrifugal pumps working on pipe lines" is discussed in the latest issue of the News Letter, published by Byron Jackson, Pump Division, Los Angeles, Calif.

C. E. Herington has been appointed director of publicity and advertising manager by the Meehanite Research Institute of America, Pittsburgh, Pa. He will conduct an advertising and publicity program for Meehanite metal.

Landis Machine Co., Waynesboro, Pa., has prepared a mailpiece entitled, "For the Ultimate in Modernization Landisize Your Threads."

A folder, "Hastelloy Alloys Price List," which contains information on sizes, weights, limits, and prices of Hastelloy alloy castings, hot-rolled sheets and plates, and bar stock, has just been published by Haynes Stellite Co., Kokomo, Ind., a unit of Union Carbide & Carbon Co.

Continental Motors Sales & Service Co., a division of Continental Motors Corp., of Detroit and Muskegon, Mich., has established an office and warehouse at 2824 Main Street, Dallas, Tex., in charge of Joseph Gaia.

Ridge Tool Co., Elyria, Ohio, has issued a broadside which gives complete information on its new No. 65R and 85R series pipe-threaders, with all-steel and malleable-alloy construction. These new tools thread four sizes of pipe with one set of chasers, offer a choice of two new workholders, a cam and plate type.

Yerger Represents Kibele

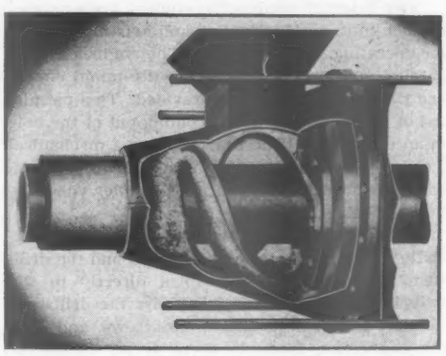
John W. Yerger, of Houston, Tex., has been made sales representative in southern Louisiana, Texas Gulf Coast and Southwest Texas for the Kibele Manufacturing Co., of Dallas, Tex. Mr. Yerger will sell Kibele's complete line of boiler-feed pump pistons, swabs, tubing-catchers and valve-in-head packers. The new Kibele representative for years represented the Well Equipment Corp. of Houston in southern Louisiana and the Gulf Coast. He attended Louisiana State University, where he took mechanical engineering, and has lived for 10 years in Houston, which will continue to be his headquarters.

Seamless Coating Is Applied to Pipe by Armor-Clad Process

Armor-Clad, a new process of coating pipe with cement or bituminous concrete, has been introduced recently by the American Pipe & Steel Corp., 230 South Date Street, Alhambra, Calif. This method of application, by means of a specially designed, patented machine, makes it possible to obtain a continuous, dense, uniform outer jacket which forms a seamless bond with the pipe. This type of protective covering is intended to be permanently effective.

Armor-Clad is based on the theory that any properly prepared material can be made to adhere tightly to pipe if it is submitted to continuous rubbing pressure. However, such plastic materials must be of the proper consistency, similar to that of bituminous and concrete Armor-Clad formulas, to respond to the spiral rubbing, troweling, and tamping action that is the secret of the success of the process. Coatings, after having been submitted to tremendous pressure, are held firmly in position by atmospheric pressure because of the intimate contact of steel and plastic.

Subjected to severe tests under the worst possible conditions, Armor-Clad is said to have proven strong and durable; impervious to corrosion, electrolysis, abrasion and soil stresses. In one case a pipe with 20 per cent of its area rusted away was rehabilitated and made serviceable; its



newly acquired mechanical strength supplied by massive concrete enabled it to withstand pressures as high as 90 pounds.

Pipe lines can be coated in the trench without interruption of service. The light steel construction of the machine facilitates its being taken into any territory. It is adjustable to various sizes of pipe and can apply coatings of thickness ranging from five-eighths inch to 2 inches. Easy removal of parts provides for the passing of obstructions and joints. Catalogs are ready for mailing.

Special Forming Head Is Put On Market by Landis Company

Landis Machine Co., Inc., Waynesboro, Pa., has designed a special forming head for use on its automatic forming and threading machine. Formerly the forming head merely faced and beveled, or "pointed," the end of the bolt or screw. In addition to facing and beveling the end of the work, the cutters used in this head are designed to reduce the body diameter of the work and face the shoulder at the end of the cut.

In order to reduce the strain on the head, the cutting load is distributed over three cutters. The cutters are located and securely lodged in the correct cutting position by a setting gauge and a clamping action similar to that employed for the Landis tangential chaser. Provision is made also for independent adjustment of each cutter-holder so that uniformity of cut is assured for each cutting tool. The forming-head body and the cutting-tool holders are made of alloy steel, heat-treated to insure maximum wearing qualities.

Portable Rotary Drilling Unit Is Placed on Market by Shaffer

The Shaffer Specialty Co., Tulsa, announces its new Model 250 portable rotary drilling unit, designed to drill 4,000 feet with 3½ or 4½-inch drill-

pipe. Other sizes are available, the Model 400 for 6,000 feet and the Model 500 for 10,000 feet. The compact arrangement of power units, transmission drive and drawworks incorporates this complete unit in two truck loads.

The unit is readily adaptable to dual installation of any make gas, gasoline, butane, or Diesel engines delivering a maximum of 125 hp. each, on the Model 250, requiring no alteration in mounting construction.

Levers for operating all clutches, as well as compound throttles, are centralized at the driller's position. Throttle control is provided in a single hand wheel comparable to steam engine control. Both engines are compounded to operate the pump, while at the same time rotary table speeds of 35-55-75 and 110 r.p.m. are available.

All of the principles incorporated in this unit are the result of practical field experience and engineering research, and the changing trend in operation to smaller holes. The manufacturer claims definite savings in lower fuel, rig-up time, maintenance and transportation costs.

Marine Cargo Breather Valve Announced by Shand & Jurs

Shand & Jurs Co., Berkeley, Calif., manufacturer of oil tank fittings, has added to its line a 4-inch marine cargo breather valve, designed to conserve the volatile gases of petroleum products transported in oil tankers or barges. The valve is of all-bronze construction with a standard loading of 3 pounds on the pressure side and 1½ pounds on the vacuum side. It affords ample venting capacity for individual cargo tanks up to 6,500 bbls. capacity.

Emsco Rumors Unfounded

Report of sale of E. M. Smith's holdings in Emsco Derrick & Equipment Co. is unfounded, according to Mr. Smith, who says he is and will continue to be the active head of the Emsco Derrick & Equipment Co. in all its oil-field activities, as well as other industrial work which the company is doing. Mr. Smith has permanently located in Houston, Tex., for his residence as well as for his headquarters.

Moving Pictures at Oil Show

As a further means of presenting engineering data to the industry and give the exhibitor a better opportunity for showing field application of equipment, Ed Lenzner, general manager, has announced that continuous moving pictures of tools and machinery in operation will be given during the entire week of the Oil-World Exposition to be held in Houston, Tex., from April 24 to 29, inclusive. These picture showings, open to all visitors, will be given in a room adjacent to the exhibiting space in the Coliseum. The reels shown will be in addition to any presented at the individual booths of the exhibitors.

Swift Succeeds Winn as President

Herbert J. Winn, retiring president of the Taylor Instrument Companies, has been made chairman of the board of directors and is succeeded in the presidency by Lewis B. Swift, formerly vice president in charge of engineering and research. Karl H. Hubbard has been appointed chief engineer, in charge of engineering research and design, and Dr. H. L. Mason succeeds him as head of the research division. Mr. Swift joined the organization in 1904. Mr. Winn has been with Taylor nearly 46 years and has served as president and treasurer 25 years.

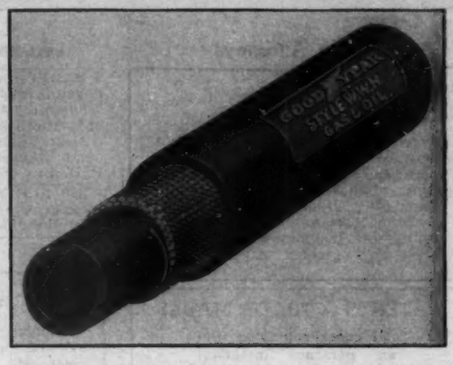
H. L. McQuiston Joins Lucey

H. L. McQuiston, former division superintendent for Phillips Petroleum Co., and more recently an independent producer on the Gulf Coast, has joined Lucey Products Corp., Tulsa, as special representative, with headquarters at the company's new office in Fairfield, Ill.

After leaving the University of Pittsburgh, Mr. McQuiston worked in the Pennsylvania fields as a roustabout, cleanout helper and cleanout driller, going to Oklahoma in 1917, working on tools and then as a district foreman. For two and one-half years he served as a general superintendent for the Independent Oil & Gas Co. until the merger with Phillips. While with the latter company he had charge of the central division, consisting of Burbank, Seminole, and Oklahoma City properties. Mr. McQuiston has been active in vocational training and A.P.I. work, assisting in the organization of chapters in the Mid-Continent.

Gasoline Hose of Two Types Is Put on Market by Goodyear

Goodyear Tire & Rubber Co., Akron, Ohio, has announced two new types of gasoline curb-pump hose, both of which contain a synthetic compound



in the tube, a material that is impervious to the action of gasoline. These constructions are identified as Style B H and Style W W H.

Style B H contains a body of three strong cotton braids with a strand of copper wire interwoven with the middle braid, which when in contact with the fittings disposes of any static electricity that may be built up. Over the third braid is an abrasion and weather resisting cover.

Style W W H has a circular woven jacket in the body which has interwoven in it a steel spring wire, which functions to resist crush, and when the ends are in contact with the fittings, eliminates static electricity. Over the woven jacket is an abrasion- and weather-resisting cover.

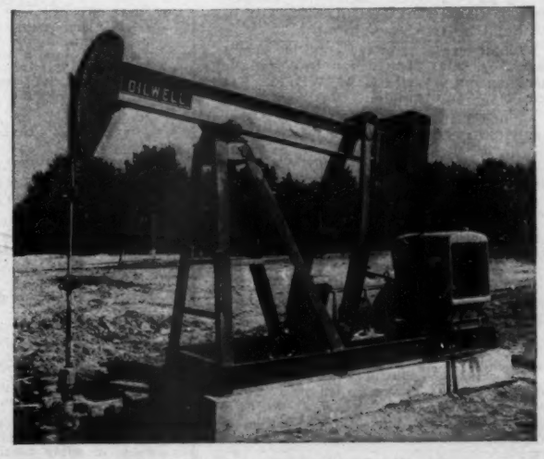
The cotton body of each construction is protected by the cover. This eliminates moisture from the body, which results in a longer life, because the cotton will not mildew, will not become stiff in cold weather, and at the same time, provides a hose that is easily kept clean. Style W W H, shown in the illustration, being circular woven with the wire in the body, is not easily crushed, but should an accident occur to the hose, can easily be rounded out to its normal shape. Goodyear has placed both types on the market with a view of permitting users to decide which is the better for the service.

SMALL PUMPING UNIT HAS FEATURES OF LARGER ONES

Oil Well Supply Co. has added to its line of pumping units the "Oilwell" TC-8 twin-crank unit with 8,000 pounds polished-rod capacity. Its A.P.I. peak torque capacity of 20 s.p.m. is 38,600 inch-pounds. Stroke lengths are 20¾, 23, 26 and 30 inches. When so specified its walking-beam is equipped with an attachment for second-well pumping.

The TC-8 was developed to meet the demand for a small twin-crank unit having certain features of the larger "Oilwell" pumping units. An advantage which is attracting particular interest is the strong and rigid structure formed by welding a sturdy, derrick-type samson-post to a widespread, structural-steel base. Because of this construction the unit shows no tendency to weave under load even when installed on a derrick floor or a wood foundation.

The speed-reducer is equipped with fully heat-treated steel, single-helical, double-reduction gears. The 42.15:1 overall ratio facilitates the use of low-priced, high-speed prime movers. The base is extended and provided with universal slide rails for convenience in mounting the prime mover. All speed-reducer shafts rotate in tapered roller bearings; the crankpins are equipped with self-aligning spherical roller bearings; and the upper pitman



and saddle bearings are bronze bushed. Oil seals retain lubricant in all bearings. Complete specifications are contained in Bulletin No. 194, obtainable at any Oil Well Supply Co. store or office.

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PATENT LAWYER
Patents obtained — infringement practice in all Courts—oil field experience. 1807-11 Tower Petroleum Bldg., Dallas. 2014 Second Nat'l. Bank Bldg., Houston. 707 Insurance Building, San Antonio. 433 Munsey Building, Washington. D. C. Address any of these offices.

PATENTS — TRADE MARKS
All cases submitted given personal attention.
Form "Evidence of Conception" with instructions for use and "Schedule of Government and Attorneys' Fees—FREE
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Patent Law Offices
418 Bowen Bldg. Washington, D. C.

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SINCE 1908 Burkhart's legal forms—serving Mid.-Cont. & Illinois oil fields. Free catalog & samples. Burkhart Ptg. & Sta. Co., 115 So. Cinn., Tulsa, Okla.

Leases and Drilling Blocks

LEASES—East Texas, La., South Ark. 20 acres up, dollar acre up. Owners—Address Attorney, Box 1122, Little Rock, Ark.

DRILLING deals wanted 50,000 acres Southern Illinois in and around production area. Elmer Gant, Anna, Illinois.

NEW MEXICO
State Oil and Gas Leases
Forty acres and multiples thereof at $6.00 to $30.00 per forty in the Hot Spots. Write for list. Twenty years in the business and not a complaint.
HARRY S. WRIGHT
New Mexico State Lessee, P. O. Box 347, Santa Fe, N. M., or P. O. Box 166, Council Bluffs, Iowa.

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ILLINOIS 60,000 acres in and near production. Illinois Minerals Company, Cairo, Illinois.

NEW MEX. LEASES; Lea, Eddy, Chaves, Roosevelt, other SE Counties, 40,000 ac. blocks or spreads. Legitimate inquiries invited. GEO. M. COWELL CO., 412 W. 6th St., Los Angeles, California.

TEXAS leases in active counties cheap. Large or small tracts for brokers and salesmen only. Write H. H. WHITE, P.O. Box 674, San Antonio, Texas.

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Subdividing 80 acres in tracts as small as 1¼ acres. Buyers share in oil, gas, and minerals under entire 80. Write for literature.
HARRY S. WRIGHT
Box 347, Santa Fe, New Mexico.

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R. G. GRAY
O'Dell Hotel, Hot Springs, New Mexico.

FOR SALE—2400 acres Oil and Gas Leases Dahlgren Township Hamilton County Ill. five yr. leases rentals paid, title certificates quick sale 50 cts. per acre. Box 612, Owensboro, Kentucky.

NEW 10-year 40-acre Oil Lease Lea County, joining Gulf Oil Corp., apprx. 1½ miles east of production in Eunice Oil Pool, only $10.00 acre. Roy G. Barton, Hobbs, New Mexico.

SACRIFICE 40-acre Oil Lease, Chaves County, for only $10.00, full price. Guarantee title. P. O. Box 191, Clovis, N. Mex.

Leases and Drilling Blocks

PARTY now conducting special geophysical exploration surveys for oil promise is often in contact with drilling block opportunities, leases, production, royalties and sometimes capital for development where favorable conditions exist. P. O. Box 364, Fort Worth, Texas.

320 ACRES, Crane Co., Tex., Magnolia lease, cheap in fee. Address 415 Littlefield Building, Austin, Texas.

Wanted

WANTED
Producing properties—Will buy outright or develop for an interest. Send plat and complete information to Box J-621, The Oil and Gas Journal, Tulsa, Oklahoma.

Financing

CAPITAL SEEKERS—Put your project before 260 Key-Men. Cost trifling. Details free. AMSTER LEONARD, Fox Theater Building, Detroit, Michigan.

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Situations Wanted

WANTED. Production Supt. and combination Tool pusher, 30 years' experience would like to make connection with Independent operator. Address Box J-641, The Oil and Gas Journal, Tulsa, Oklahoma.

SUPT. with 25 years' experience in leasing, drilling, pipe lines, production, and distribution of oil and gas, available at once. Address Box J-650, The Oil and Gas Journal, Tulsa, Oklahoma.

OFFICE MAN, bookkeeper, employed by Central Texas wholesale firm, desires position with oil company or independent operator. Address Box J-651, The Oil and Gas Journal, Tulsa, Oklahoma.

ENGINEER, superintendent, experienced in the design, drafting and construction of modern refining equipment including atmospheric, vacuum, pressure units, combination units and poly plants. Supervision of topping and cracking plants, grease and asphalt plants. Young man looking for a permanent connection. Can handle research problems. Address Box J-652, The Oil and Gas Journal, Tulsa, Okla.

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WANTED: Reliable and experienced Gas Lift Sales Engineer. Give complete personal record with references. Address Box J-611, The Oil and Gas Journal, Tulsa, Oklahoma.

WANTED: Capable "go getter" salesman who makes oil field trade regularly to handle oil field tool of great merit. Sell on sight. Must furnish references. Address:
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509 Faurot Building, Lima, Ohio.

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FREE COPY OIL AND GAS FIELD MAP
Of Texas, Eastern N. M., parts Southern Okla., SW Ark. and La. with every order for County Ownership or Oilfield Map. New map just out on Westmount Area in Lea Co., N. M.
Price $6.50 cloth $4.50 paper.
ZINGERY OIL MAP COMPANY
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UP-TO-DATE production maps of Kansas or Oklahoma. Oklahoma 4 by 6 ft. on paper $12—cloth $15. Kansas 4 by 8 ft. on paper $16—cloth $20. Also smaller sizes 28" by 36"—$4 and $6.
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15 years of experience.
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ROYALTY Lists. Unit Owners Lists. Stockholders Lists. By states. Oil Industry Mailing List Co., Tulsa Loan Bldg., Tulsa, Oklahoma.

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"TRENTON (Missouri), in the heart of the leased area" (O.&G. J., 11-10) is the hot spot in the new North Central Missouri play. TRENTON provides adequate housing, low living cost, complete information, maps, supplies. Write or see Chamber of Commerce, TRENTON, Mo.

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VIKING 4", 250# pressure rotary pump and Foote reducer ready for connection to engine. Like New $350.00. Worthington 4", 200# pressure rotary, only $275.00.
CORKEN
206 E. Grand, Oklahoma City, Okla.

FOR SALE

1—Star Drilling Machine with 50 h.p. Hercules motor, all mounted on Caterpillar Traction. 20,000 feet 4" seamless drill pipe with tool joints to single. We have a complete line of casing, line pipe and drilling machinery. Also have racked in Kansas 25,000 feet 8" plain end line pipe suitable for high pressure gas or oil line. Wire, phone, or write to

Louisiana Iron & Supply Co.
Shreveport, Louisiana

25 K.W. and 40 K.W. Gas Engines, 220 volts, D.C. Two 100 K.W. Gas Engine-Generator Sets, 220 volts, D.C. 7x6 Ingersoll-Rand ER-1 Air compressor. Six-inch Oster Pipe Threading Machine. Also large stock of lathes, pipe machines, milling machines, etc. Send for our list.
Terms to suit.
CINCINNATI MACHINERY & SUPPLY CO.
26 West 2nd St. Cincinnati, Ohio.

FOR SALE: At Oklahoma City 1—10,000 Barrel Parkersburg knocked down bolted steel tank. I.T.I.O., Bartlesville, Oklahoma.

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Classified advertising rates: First insertion, 35 cents a line; each additional insertion, 25 cents a line, PAYABLE IN ADVANCE. Six words usually make a line. Count as a word each one-letter word and each group of figures. White-space computed at regular line rate. Allow two extra lines for blind ads. Ads of less than three lines not accepted. No formal acknowledgement is made, and proofs cannot be shown in advance of publication.

	1 time	2 times	3 times	4 times
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5 Lines	1.75	3.00	4.25	5.50
6 Lines	2.10	3.60	5.10	6.60
7 Lines	$2.45	$4.20	$5.95	$7.70
8 Lines	2.80	4.80	6.80	8.80
9 Lines	3.15	5.40	7.65	9.90
10 Lines	3.50	6.00	8.50	11.00

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Classified Display is set with a border and may be used in one or two column sizes.

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1 Inch	13 times	4.50 per inch
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1 Inch	52 times	3.50 per inch

This space may be contracted for over a period of one year from the date of the first insertion and is PAYABLE IN ADVANCE, MONTHLY.

We reserve the right to withhold all advertising of questionable character. To avoid delay be sure to send remittance with copy. We will set your ad in the smallest amount of space possible and refund all overpayments. One-time insertions will not be run until fully paid. Forms close MONDAY NOON before each issue date.

THE OIL AND GAS JOURNAL
Tulsa, Oklahoma

STEEL STORAGE TANKS—SPECIAL

150—80,000 Bbl. Cap. All Steel, Latest Type,
Quotations Reerected any location in the United States
Complete Stock all other size tanks
Write immediately for quotations.

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Kansas City, Kans.

J. O. Isaacks
Hays, Kansas

Robt. W. Duden
2100 S. Union
Tulsa, Oklahoma

DISMANTLING GASOLINE PLANT

Engines, Compressors, Storage Tanks, Regulators, Meters, Pumps, Buildings, etc.

Will sell plant complete or individual items.

Also complete stock of Line Pipe and Casing on hand.

Wire, phone, write

PRODUCERS PIPE & SUPPLY CO.
Tulsa, Oklahoma
Box 1814 Phone 2-1188; L.D. 501

FOR SALE—1 Model KS-6-DHK Cardwell Oilwell servicing winch unit, mounted on Mack Truck. Can be inspected O.C. garage. Operating condition now. I.T.I.O., Bartlesville, Okla.

TRACTORS

Government crawler type Caterpillars, 5 ton $375, 10 ton $695. Slightly used. Perfect condition.

O. C. EVANS
Mt. Sterling, Ky.

FOR SALE: At our Oklahoma City Warehouse Model D48 Muskogee Iron Works long line well servicing unit powered by HXE Hercules engines mounted on No. 55 truck. I.T.I.O., Bartlesville, Oklahoma.

ONE complete string steam rotary with rig, two 90 horse power boilers, in shape to drill immediately, priced $9500. One complete string steam rotary with rig, three 90 horse power boilers, complete with fishing tools and other extra equipment, in excellent shape to drill, priced $15,000. Rigs located on Tucker Lease, Haven, Kansas. For further information contact Vicking Drilling Company, c/o Yingling Chevrolet Co., Wichita, Kansas.

OVER 100,000 FEET 10¾" O D

Forty pound used wrought Iron line pipe with threads and couplings. Cleaned. Located Walton and Greentown, Indiana. Exceptionally LOW PRICED. Wire or Write.

STANDARD OIL FIELD SUPPLY CO.
P.O. Box 863 Houston, Texas

1—Gasoline powered rotary rig consisting of: 2—125 HP Waukesha engines with reduction gears, 1—Reverse clutch, 1—3 speed drawworks, 1—6x12 Gardner-Denver pump, 1—96' Emsco steel derrick, 1—17" Oil Well rotary, 1—48" Boykin traveling block, 1—Boykin crown block, 1—Steel tool house, 1—clothes house, 1—Kohler light plant with house, 1—100 bbl. water tank and 1,350' 4" drill pipe.

1—Portable Rig, Rig #447 complete with 180 HP Waukesha Hesselman engines, slush pump and all equipment including 3,200 feet 4½" pipe.

1—6,000 foot Diesel electrical-mechanical rig, complete and in excellent condition.

K. S. RICHARDS
P.O. Box 830 Phone 2-1161 Ft. Worth, Tex.

WHAT ABOUT YOUR DECEMBER 31st INVENTORY?

Will it reflect a lot of idle equipment—equipment that has served its usefulness to your company?

Cash buyers are looking for used equipment in good condition and will pay a fair price. Allow us to call attention to your idle pieces. Our publication, devoted to oil men, enables us to serve you more efficiently than any other medium.

A small ad in these columns will contact prospective buyers at a trivial cost.

Classified Department.

GUARANTEED EQUIPMENT

Bargain Prices: 120 H. P. Tips Oil Engine-Ideal Alternator Generating Set, 440-220 Volt; 85 HP. Bessemer Oil Engine; 50 HP. Worthington Diesel; 40 Tips Convertible Engine. Write TIPS ENGINE WORKS, Austin, Tex.

SECTIONAL STEEL BUILDINGS FOR SALE: 1—30 x 10 x 60 standing; 1—20 x 8 x 128 K.D. Oklahoma City; 1—24 x 8 x 106 K.D. Seminole. Condition O.K. Inspection invited. I. T. I. O., Bartlesville.

Equipment Wanted

WANTED: 2000—9⅝" OD Field End Colona Casing Protectors. I.T.I.O. Purchasing Dept., Bartlesville, Oklahoma.

WANT 20 to 24-foot all steel band wheel power. Also 35 H.P. Superior. Give condition, location, and price. Box 57, Chetopa, Kansas.

Crude Oil Prices

(Continued from Page 114)

Iles, heavy, Colo. (Oct. 11, 1938)† .92
Dutton Creek, Wyo. (Oct. 11, 1938)†
See note below
Frannie, light, Wyo. (Oct. 11, 1938)† .55
Frannie, heavy, Wyo. (Oct. 11, 1938)† .42
Hamilton dome, Wyo. (Oct. 11, 1938)† .35
Midway, Wyo. (Oct. 11, 1938)†
See note below
Salt Creek Tensleep crude, Wyo. (Oct. 11, 1938)† .646
Salt Creek (Oct. 11, 1938) See note below
Canon City, Colo. (Oct. 11, 1938)‡ .90
Florence, Colo. (Oct. 11, 1938)‡ .90
Cat Creek, Mont. (Oct. 11, 1938)‡ 1.10
Big Muddy, Wyo. (Oct. 11, 1938)‡ .98
Lance Creek, Wyo. (Oct. 11, 1938)‡ .77
Lea County, N. M.
See West Texas gravity schedule‡
Artesia, Jackson and Maljamar
See gravity table‡
Fort Collins and Wellington, Colo.
See gravity table‡
Eddy County, N. M. (October 11, 1938)¶ .77

*Ohio Oil Co. †Stanolind Oil & Gas Co. ‡Continental Oil Co. ¶Sinclair Prairie Oil Marketing Co.

Dutton Creek and Salt Creek Tensleep crude start at below 29 degrees, 86 cents, 2 cents spread to 40 and over at $1.10. Salt Creek crude excepting Tensleep, takes Standard Oil Co. of Indiana Oklahoma-Kansas prices. Stanolind Oil & Gas Co., effective October 11, discontinued posting prices in Greybull-Torchlight, Wyo., and Hogback and Hospah, N. M.

West Texas

See gravity table.
Pecos County (Oct. 11, 1938)* $ .78
Pecos shallow (Oct. 11, 1938)† .65

*Shell Petroleum Corp., Gulf Pipe Line Co. and Humble Oil & Refining Co. †Shell Petroleum Corp.

Eastern States

TIDE WATER ASSOCIATED OIL CO. and NEW YORK TRANSIT CO
(Effective September 1, 1938)
Bradford, Pa. $1.68
Allegany, N. Y. 1.68

SOUTH PENN OIL CO.
(Effective September 1, 1938)
Pennsylvania Grade Oil in National Transit Lines (Bradford field) $1.68
Pennsylvania Grade Oil in Southwest Pennsylvania Lines 1.34
Pennsylvania Grade Oil in Eureka Pipe Line lines 1.28
Pennsylvania Grade Oil in Buckeye Pipe Line lines 1.18
Corning Grade Oil in Buckeye Pipe Line Co. line (Oct. 18, 1938) .97

PENNZOIL CO.
Group A $1.61
Group B 1.60
Group C 1.59
Group D 1.58
Group E 1.56

PURE OIL CO.
(Effective September 1, 1938)
West Virginia $1.28

Canada

Ontario (Oct. 25, 1938)*
Petrolia $1.90
Oil Springs 1.97

TURNER VALLEY
(January 5, 1938, by Imperial Oil, Ltd.)
Clear naphtha and discolored naphtha, 65 gravity and higher $2.14
Discolored naphtha and crude oil, 40-40.9 gravity 1.14
Increasing 2 cents for each degree gravity with top price for 64-64.9 gravity 1.62
These prices f.o.b. producers field tankage.

*Imperial Oil, Ltd.

STANDARD OIL CO. OF CALIFORNIA AND UNION OIL CO.
Crude oil prices at the well effective June 22, 1936

Gravity—	Signal Hill (Long Beach)	Seal Beach	Alamitos Heights	Huntington Beach	Inglewood	Playa del Rey	Olinda-Brea Canyon	Athens-Rosecrans	Dominguez	Elwood Terrace	Torrance	Richfield	Whittier E. Coyote (La Habra)	Montebello	W. Coyote Hills	Santa Fe Springs	Mountain View	Elk Hills Buena Vista Hills Midway-Sunset Lakeview Area	Lost Hills	Coalinga	Santa Paula*	Wheeler Ridge	Kettleman Hills	Orcutt*
14-14.9	$.80	$.79	$.74	$.78	$.79	$.80	$.76	...	...	...	$.80	$.76	$.76	$.77	$.78	...	...	$.70	$.70	$.70	...	...	$.70	...
15-15.9	.80	.79	.74	.78	.79	.80	.76	...	...	...	.80	.76	.76	.77	.78	...	...	.70	.70	.70	...	...	.70	...
16-16.9	.80	.79	.74	.78	.79	.80	.76	...	...	...	.80	.76	.76	.77	.78	...	...	.70	.70	.70	...	...	.70	$.70
17-17.9	.80	.79	.74	.78	.81	.80	.76	...	...	...	.80	.76	.76	.77	.78	...	...	.70	.70	.70	...	...	.71	.70
18-18.9	.80	.79	.74	.78	.84	.80	.78	...	...	...	.82	.76	.76	.77	.78	...	...	.70	.70	.70	...	...	.73	.72
19-19.9	.82	.79	.74	.82	.87	.84	.81	...	...	...	.85	.76	.78	.77	.78	...	$.70	.74	.74	.71	$.70	...	.75	.74
20-20.9	.85	.79	.74	.85	.90	.88	.84	...	...	...	.88	.78	.82	.77	.80	...	.70	.78	.78	.72	.70	...	.77	.77
21-21.9	.88	.79	.74	.89	.93	.93	.88	...	...	...	.91	.80	.85	.77	.84	$.78	.73	.82	.82	.74	.70	...	.79	.80
22-22.9	.92	.82	.74	.92	.96	.98	.92	...	...	...	.93	.84	.89	.79	.88	.78	.77	.87	.86	.78	.72	...	.82	.83
23-23.9	.95	.86	.77	.96	.99	1.02	.96	$.84	$.79	...	.96	.88	.93	.82	.92	.78	.80	.92	.90	.82	.76	...	.85	.86
24-24.9	.99	.91	.80	1.00	1.02	1.06	.99	.88	.81	...	.99	.91	.96	.85	.96	.82	.84	.97	.94	.86	.79	...	.87	.88
25-25.9	1.03	.95	.82	1.03	1.05	1.11	1.03	.93	.83	...	1.02	.95	...	.89	.99	.86	.88	1.01	.98	.90	.83	...	.90	.91
26-26.9	1.06	1.00	.85	1.07	1.09	1.16	1.06	.98	.86	...	1.05	.98	...	.92	1.03	.90	.91	1.06	1.02	...	...	...	.92	.93
27-27.9	1.10	1.05	.88	1.11	1.12	...	1.10	1.03	.88	...	...	1.02	...	.96	1.06	.95	.95	1.10	1.06	...	...	...	.95	...
28-28.9	1.14	1.10	.90	1.14	1.15	...	1.14	1.07	.90	...	...	1.06	...	.99	1.10	.99	.99	1.15	1.10	...	...	...	.97	...
29-29.9	1.17	1.15	.93	1.18	1.18	F.O.B.	1.17	1.12	.93	...	...	1.09	...	1.03	1.14	1.03	1.02	1.20	1.14	...	...	...	.99	...
30-30.9	1.21	1.19	.95	1.22	1.21	our	1.21	1.17	.95	F.O.B.	...	...	...	1.07	1.17	1.08	1.06	1.25	1.18	...	...	...	1.01	...
31-31.9	...	...	...	...	1.24	Pipe	1.24	1.22	.97	Ship	...	...	...	1.11	1.21	1.12	1.09	1.29	...	...	...	...	...	...
32-32.9	...	...	...	...	1.27	Line	1.27	1.27	1.00	...	...	...	...	1.14	1.25	1.16	1.13	1.34	...	...	...	...	...	...
33-33.9	...	...	...	...	...	...	...	1.32	...	1.28	...	...	...	1.18	1.28	1.20	1.17	1.38	...	...	...	$1.19	...	...
34-34.9	...	...	...	...	...	...	...	1.37	...	1.32	...	...	...	1.22	1.32	1.25	1.20	...	...	...	...	1.23	...	...
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Newhall, McKittrick, Kern River, Kern Front and Round Mountain, 70 cents for all grades. *Posted by Union Oil Co. Same company's Brea Canyon schedule stops at $1.14 for 28 degrees and over, and Belridge and Lost Hills schedule stops at $1.32 for 37 degrees and over. By Standard Oil Co., effective October 15: El Segundo, 14 to 18.9 degrees, 80 cents; 19-19.9, 82 cents; 20-20.9, 85 cents; 21-21.9, 88 cents; 22-22.9, 92 cents; 23-23.9, 95 cents; 24-24.9, 99 cents; 25-25.9, $1.03; 26-26.9, $1.06; 27-27.9, $1.10; 28-28.9, $1.14; 29-29.9, $1.17; 30-30.9, $1.21. Wilmington, 14 to 16.9, 75 cents; 17-17.9, 77 cents; 18-18.9, 79 cents; from 19 degrees upward, prices same as Signal Hill.

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